APPROVED COKE-BURNING APPLIANCES

NATIONAL FEDERATION OF GAS COKE ASSOCIATIONS

APPROVED COKE-BURNING APPLIANCES

ABRIDGED CATALOGUE

1948

Full Catalogue first published 1938
Revised and reprinted 1942
(London & Counties Coke Association)
Revised 1948
(National Federation of Gas Coke Associations)

NATIONAL FEDERATION OF GAS COKE ASSOCIATIONS
incorporating LONDON & COUNTIES COKE ASSOCIATION
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*Mr. F. A. Haddock . .	Secretary.

* These members, together with the late Mr. E. W. L. Nicol, compiled the first catalogue of Approved Coke-Burning Appliances.

DISTRICT COKE ASSOCIATIONS

Technical enquiries should be sent to the nearest District Coke Association at the following addresses :—

Lancashire & District Coke Association, 38, Kennedy Street, Manchester, 2.	Central 8027
London & Counties Coke Association, 1, Grosvenor Place, London, S.W.1.	Sloane 5136
Midland Counties Coke Association, King Edward House, 135, New Street, Birmingham, 2.	Midland 1186
North of England Gas Coke Association, 30, Grainger Street, Newcastle-upon-Tyne, 1.	Newcastle 26101
Scottish Coke Association, 48, West George Street, Glasgow, C.2.	Douglas 0843
South Wales & District Gas Coke Association, Gas Offices, Bute Terrace, Cardiff.	Cardiff 7660
Yorkshire Gas Coke Association, Guildford Chambers, 111, The Headrow, Leeds, 1.	Leeds 25691

FOREWORD

The National Federation of Gas Coke Associations comprises the seven District Associations whose names and addresses are given on the previous page.

The policy of the Federation is directed towards furthering the more effective preparation and utilisation of coke. In this connection the findings of the Domestic Fuel Policy Report are welcomed. Many of the recommendations made in that report can only be carried out provided suitable appliances, correctly installed, are available in all domestic premises, and this catalogue is designed to cover this aspect of the Federation's interest.

It is now ten years since the London and Counties Coke Association first published its catalogue of Approved Coke-Burning Appliances, and the present issue of amendments to the full editions of 1938 *and* 1942 *includes the alterations to existing appliances and new appliances which have been approved more recently by the Technical Committee. At the same time, and in response to numerous requests for a more portable form of the catalogue, an abridged edition is now issued containing mainly domestic appliances ; the loose leaf cover provides space for some additional data sheets from the full catalogue should this be required.*

The National Federation take this opportunity of acknowledging the work on coke-burning appliances carried out by the London and Counties Coke Association, and particularly the compilation of the original approved catalogue.

Members are reminded that the technical staffs of the National Federation are at all times available to advise on any type of appliance, whether included in the catalogue or not, and equally upon any heating problems.

H. C. Smith *Chairman.*

Chairman of Technical Committee.

National Federation of Gas Coke Associations,
1, *Grosvenor Place, London, S.W.*1.

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INTRODUCTION

In 1936 the Technical Committee of the London and Counties Coke Association commenced to compile, primarily for the benefit of its members, the original catalogue of approved appliances, giving illustrations, dimensions, technical data and recommended coke sizes, to replace the simple list previously available. The catalogue was published in 1938 and copies were distributed to architects, builders and others interested in coke-burning appliances. A further revised and enlarged edition was issued in 1942.

The appliances in the catalogue are required to pass certain dimensional and performance standards before they are approved, and this ensures that they can be relied upon to fulfil their purpose adequately and efficiently.

With the formation of the National Federation of Gas Coke Associations, the task of approving appliances was transferred to the Technical Committee of the Federation and a new Appliances Sub-Committee was set up with technical representatives appointed by the District Coke Associations. With this wider representation it has become possible to obtain, particularly by means of " field " tests, more information on the performance of appliances under actual operating conditions than has hitherto been possible. Such " field " tests are regarded as an essential addition to the laboratory tests carried out on new appliances by members of the Federation.

The Ministry of Fuel and Power set up a Domestic Solid Fuel Appliance Testing Panel in August, 1946, and this Panel includes representatives of the Federation's Appliances Sub-Committee. The Panel has agreed on laboratory test methods and performance standards for appliances, and arrangements have been made for an interchange of test results and other information, so that duplication of appliance testing is avoided.

The standards specified ensure that approved appliances are efficiently designed, soundly constructed and, when correctly installed, will give satisfactory performance and results when using coke. Most appliances in the catalogue are suitable for anthracite, dry steam coal and hard coke ; some, notably the open fires, will burn bituminous coal at the same efficiency as that given by the normal coal stool bottom grate. These appliances comply with the wishes of the Ministry of Fuel and Power in being designed to give as high an efficiency as possible when burning all types of domestic solid fuels. It is not implied that all appliances given in the catalogue are of equal merit or that all of the appropriate type will prove equally suitable for a particular purpose, but they all exceed the minimum requirements given in the bases of approval.

The original catalogue of Approved Coke-Burning Appliances, even in the thin paper edition, was a heavy volume only suitable for office use, and this, to some extent, limited its objective of providing a reference book for the coke representative or salesman. The

INTRODUCTION—*continued*

abridged edition, now issued, has therefore been reduced in size by excluding those sections to which reference need only be made occasionally. As compiled, it deals only with domestic coke-burning appliances, but its loose leaf cover will enable the user to add further data sheets from the full edition which may be of special interest. To provide this interchange of data sheets, it has been necessary to retain the page size adopted for the first edition and this has imposed limits on the portability of the abridged edition which have to be accepted at present.

Since 1942 considerable development has taken place, particularly in open fires and domestic boilers, and British Standard Specifications now cover the design requirements of these new appliances. The section on open fires has, therefore, been entirely rewritten and now includes the new units which give convected heat as well as radiation and hot water, and also the open fires with back boilers of increased heating surface. These latter appliances are designed to provide some background heating as well as a hot water supply and space heating in the room containing the appliance.

The new domestic hot water boilers have a larger minimum fuel capacity and improved air control, which has considerably improved their performance, particularly under banked conditions of firing.

A catalogue of approved appliances can never be completely up-to-date. New appliances are being designed, older models improved or their manufacture discontinued. The loose leaf cover has been adopted so that additions or deletions can be made easily and such revisions will be made from time to time. Some coke-burning appliances not in the catalogue may be satisfactory but have not yet been considered, and it would be appreciated if particulars of all such appliances were sent to the Secretary of the Appliances Sub-Committee.

The National Federation has continued to receive the active co-operation of the appliance manufacturers and takes this opportunity of thanking them not only for their help in providing data for the catalogue, but also for their ready acceptance of suggestions made to them by the Federation in connection with the development of new appliances.

COKE—TECHNICAL DATA

Coke is available in a number of different sizes, one or more of which will be found to be suitable for every appliance given in the approved catalogue. In the description of each appliance will be found the size or sizes of coke recommended, and it is strongly urged that this recommendation should be adopted since the use of an incorrect size of coke may give rise to serious difficulties, such as lack of flexibility, excessive clinker formation, low efficiency or failure to feed satisfactorily, and so on. In this connection it should be pointed out that one size of coke, viz., No. 5 coke, is at present available in relatively small quantities, and this fact should be taken into consideration when fitting or recommending appliances requiring this size.

The table below gives the definitions of the various recommended sizes of coke and this is followed by certain other data concerning the characteristics and properties of coke.

RECOMMENDED SIZES OF COKE

Name	*Number*	*Size—All Square Mesh*
Large or Unbroken	1	Over 1¾ in. with no upper size limit
2 × 3 in.	1A	Within the limits of 1¾ and 3½ in.
Broken Coke	2	Within the limits of 1 and 2 in.
Coke Boiler Nuts	3	Within the limits of ½ and 1¼ in.
Forge beans	4	Within the limits of ⅜ and ¾ in.
Automatic Stoker fuel	5	Within the limits of ⅛ and ¾ in. from which fines up to ⅛ in. have been removed

AVERAGE BULK DENSITIES

Dry Basis

Size Number	*TYPE OF COKE*							
	Continuous Vertical		*Intermittent Vertical*		*Horizontal*		*Coke Oven*	
	lb. per cu. ft.	*cu. ft. per ton*	*lb. per cu. ft.*	*cu. ft. per ton*	*lb. per cu. ft.*	*cu. ft. per ton*	*lb. per cu. ft.*	*cu. ft. per ton*
1. (Large)	19	118	25	90	25	90	27	83
1A. (2 × 3 in.)	19	118	25	90	25	90	27	83
2. (Broken)	20	112	27	83	27	83	30	75
3. (Coke Boiler Nuts)	22	102	30	75	30	75	32	70
4. (Forge beans)	23	97	31	72	30	75	32	70
5. (Automatic Stoker fuel)	24	93	32	70	32	70	34	66

For comparison, the following figures for coal are given :—

	lb. per cu. ft.	*cu. ft. per ton*
Anthracite	55–60	35–40
Bituminous coal	50–55	40–45
Welsh steam coal	50–55	40–45

GROSS CALORIFIC VALUE OF COKE

The average calorific value of dry ash-free coke may be taken as 14,400 B.Th.U. per lb. The following table has been calculated from the formula :—

$$\text{Calorific value} = 14{,}400 \left[1 - \frac{(a+m)}{100}\right] \text{ B.Th.U. per lb. (wet)}$$

where a = ash content, per cent. (wet basis)
m = moisture content, per cent.

Since the average hydrogen content of coke is of the order of 1 per cent., there is only a negligible difference between the gross and net calorific values.

Total Ash + Moisture per cent.	*Calorific Value B.Th.U. per lb.*
5	13,640
6	13,500
7	13,360
8	13,210
9	13,070
10	12,930
11	12,780
12	12,635
13	12,500
14	12,350
15	12,200
16	12,060

THEORETICAL AIR REQUIREMENT AND PRODUCTS OF COMBUSTION

Table showing weights and volumes of air required per lb. of coke containing various percentages of ash and moisture, and the weights and volumes of products formed per lb. of coke burnt :—

Ash and Moisture in Coke per cent.	*Theoretical Air Requirements per lb. of Coke Burnt*		*Theoretical Products of Combustion per lb. of Coke Burnt*	
	lb. Air	*Cu. ft. Air at 0° C., 760 mm., Dry*	*lb. Product*	*Cu. ft. Products at 0° C., 760 mm., Dry (excluding H_2O Vapour)*
5	11·14	137·9	12·09	136·1
10	10·55	130·7	11·43	129·0
15	9·96	123·4	10·81	122·0
20	9·38	116·2	10·17	114·7

OPEN FIRES
DOMESTIC BOILERS
AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

LIST OF APPROVED COKE-BURNING APPLIANCES

OPEN FIRES AND CONVECTOR FIRES (SECTION A)

ALLIED IRONFOUNDERS LTD.

Zenith Grate

BRATT COLBRAN LTD.

Portcullis Inset Grate

EAGLE RANGE & GRATE CO. LTD.

Fulham Inset Grate
Eagle Sutton Number 1 Inset Grate
Eagle Sutton Number 2 Inset Grate
Eagle Open Fire Convector Grate No. 2
Eagle Open Fire Convector Grate No. 4
Eagle Open Fire Convector Grate No. 6
Eagle Open Fire Convector Grate No. 8

SIDNEY FLAVEL & CO. LTD.

Metro E116 Inset Grate
Metro Boiler-Convector Unit

IDEAL BOILERS & RADIATORS LTD.

Ideal Neofire Number 2

CHAS. LATHE & CO. LTD.

Claco Inset Grate

NEWTON CHAMBERS & CO. LTD.

Redfyre Inset Grate
Redfyre Bacboiler Number 4 with Open Fire

ORME, EVANS & CO. LTD.

A.C. Beacon Inset Grate

DOMESTIC BOILERS FOR HOT WATER SUPPLY OR CENTRAL HEATING

BEESTON BOILER CO. LTD.

FOF Open Fire Boiler
FOF (E.J.) Open Fire Boiler with Enamel Jacket
WOF Open Fire Boiler
New OOF, New AOF, BOF, COF, DOF Open Fire Boilers
TWOF, TOOF, TAOF Open Fire Boilers
PX, OX, AX Closed Domestic Boilers

CRANE LTD.

Ipswich Number 00 Open Fire Boiler
Ipswich Number 01 Open Fire Boiler
Ipswich Numbers 1 and 2 Open Fire Boilers
Ipswich Number 3 Open Fire Boiler

HARTLEY & SUGDEN LTD.

White Rose Independent Domestic Boilers

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DOMESTIC BOILERS FOR HOT WATER SUPPLY OR CENTRAL HEATING (*continued*).

IDEAL BOILERS & RADIATORS LTD.

Ideal Number O-DA Open Fire Boiler
Ideal Number LOO Open Fire Boiler
Ideal Numbers L1 and L2 Open Fire Boilers
Ideal Number I-XLA Open Fire Boiler
Ideal O-M Magazine Boiler

INTEROVEN STOVE CO. LTD

20T Nudeal Wrought Steel Boiler

LUMBYS LTD.

Solar No. IX Boiler
Royal Beaconstove Numbers 01, 02, 03 Cast Iron Boilers
Royal Beaconstove Numbers 51, 52, 53 Mild Steel Boilers

NAUTILUS FIRE CO. LTD.

Nautilus Numbers 2 and 3 Mild Steel Boilers
Nautilus Number 0 Mild Steel Boilers

ROBERT TAYLOR & CO. LTD.

Tayco Numbers 20 and 24 Boilers
Tayco Numbers 28 and 40 Boilers
Tayco Numbers 50, 60 and 75 Boilers

WILSONS & MATHIESONS LTD.

Carlton Gas & Coke Range

YATES, HAYWOOD & CO.

Wizard Boiler

LARGE CAPACITY BOILERS FOR CENTRAL HEATING AND/OR HOT WATER SUPPLY (HAND-FIRED)

BEESTON BOILER CO. LTD.

Robin Hood Royal Open Fire Type Boilers
Robin Hood Royal Boilers. Number 1
Robin Hood Royal Boilers. Number 2
Robin Hood Junior Boilers
Robin Hood Mona Boilers
Robin Hood General Boilers
Robin Hood New F Pattern Boilers
Robin Hood New C Pattern Boilers
Robin Hood New Senior Boilers
Robin Hood New Major Boilers
Small Boilers for Greenhouses, Garages, etc.
Beeston Closed Domestic Boilers
Robin Hood Sectional Domestic Boilers. Number 1
Robin Hood Sectional Domestic Boilers. Number 2
Robin Hood Colonel Boilers

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LARGE CAPACITY BOILERS FOR CENTRAL HEATING AND/OR HOT WATER SUPPLY (HAND-FIRED) (*continued*).

CRANE LTD.

- New Carlton Series Boilers
- New Carlton Series Boilers (with Open Fire Front)
- Whitehall Number 1 Boilers
- Whitehall Number 2 Boilers
- Whitehall Number 3 Boilers
- Whitehall Number 4 Boilers
- Sectional Domestic Boilers

HARTLEY & SUGDEN LTD.

- White Rose Cast Iron Sectional Series H Boilers
- White Rose Cast Iron Sectional Series 3 Boilers
- White Rose Cast Iron Sectional Series B2 Boilers
- White Rose Cast Iron Sectional Series A1 Boilers
- Metropolitan Welded Mild Steel Sectional Water-Tube Boilers
- Metropolitan Welded Mild Steel Sectional Water-Tube Steam Boilers
- Savile Welded Mild Steel Domestic Model 3 Boilers
- Savile Welded Mild Steel Domestic Model 2 Boilers
- Savile Welded Mild Steel Domestic Model 1 Boilers
- Lune Welded Mild Steel Independent Boilers
- White Rose Cast Iron Sectional Boilers
- Oval Savile Welded Mild Steel Boilers
- Metropolitan Welded Mild Steel Series 8 Boilers
- Metropolitan Welded Mild Steel Series 7 Boilers
- White Rose Cast Iron Sectional York Boilers

IDEAL BOILERS & RADIATORS LTD.

- Ideal Neo-Classic Numbers 1 and 2 Series Boilers
- Ideal Numbers 0-K and 0-KF Britannia Boilers
- Ideal Numbers 1-K and 1-KF Britannia Boilers
- Ideal Number 2-K Britannia Boilers
- Ideal Number 3-K Britannia Boilers
- Ideal Number 4-K Britannia Boilers
- Ideal Number 6 “ R ” Series Boilers
- Ideal Sectional Domestic Boilers

Low Pressure Steam Boilers

- Ideal Number 2-K Britannia Boilers
- Ideal Number 3-K Britannia Boilers
- Ideal Number 4-K Britannia Boilers

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LARGE CAPACITY BOILERS FOR CENTRAL HEATING AND/OR HOT WATER SUPPLY (HAND-FIRED) (*continued*).

LUMBYS LTD.

Solar Cast Iron Sectional Model 0, New Series Boilers
Solar Cast Iron Sectional Model B1, New Series Boilers
Solar Cast Iron Sectional Model B2, New Series Boilers
Solar Cast Iron Sectional Model B3, New Series Boilers
Solar Cast Iron Sectional Model B4, New Series Boilers
Royal Dreadnought Mild Steel Sectional Boilers
Royal George Welded Hot Water Boilers
Royal Welded Mild Steel Boilers
Copper Royal Standard Boilers
Royal Palace Welded Mild Steel Boilers
Solar Sectional Cast Domestic Boilers
Welded Royal Goliath Hot Water Boilers
Welded Mammoth Hot Water Supply Apparatus
Oval Royal Goliath Hot Water Boilers
Westminster Pressed Steel Sectional Boilers
Royal Dreadnought Unbreakable Mild Steel Sectional Boilers

GRAVITY FEED BOILERS

HARTLEY & SUGDEN LTD.

Gravico Automatic Series 2 Boilers for Central Heating by Hot Water
Gravico Automatic Series 3 Boilers for Central Heating by Hot Water
Gravico Automatic Series 5 Boilers for Central Heating by Hot Water

HEATING STOVES

THE LONDON WARMING CO. LTD.

Neo-coke Stove

ALLIED IRONFOUNDERS LTD.

Number 2 Otto Heating Stove

THE EAGLE RANGE & GRATE CO. LTD.

The Eagle Coke Heater

TANGYES LTD.

Tangye Heating Stove

MISCELLANEOUS APPLIANCES AND ACCESSORIES

GAS FIRELIGHTERS, PLUGS AND SOCKETS

WM. EDGAR & SON LTD.
Edgar Gas Firelighters
Edgar Gas Plugs and Sockets

WM. SUGG & CO. LTD.
Sugg Metro Gas Poker

RADIATION LTD.
New World Gas Poker

DRAUGHT STABILIZER

IVO ENGINEERING AND CONSTRUCTION COMPANY LTD.
Ivo Draught Stabilizer

FLUES AND LINTELS

TRUE-FLUE LTD.
True Flue Lintels

AUTOMATIC DAMPER CONTROL

FURNACE CONTROLS LTD.
Auto-Check Fuel and Heat Regulator

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OPEN FIRES AND CONVECTOR FIRES

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Portcullis Inset Grate . . . . . . Aa. 1

ORME, EVANS & CO. LTD.

A. C. Beacon Inset Grate . . . . . Ab. 1—1948

ALLIED IRONFOUNDERS LTD.

Zenith Grate . . . . Ac. 1—1948

THE EAGLE RANGE & GRATE CO. LTD.

Fulham Inset Grate . . . . . . Ad. 1—1948
Eagle Model 1052A Inset Grate . . . Ad. 2
Eagle Sutton Number 1 Inset Grate . . . Ad. 3—1948
Eagle Sutton Number 2 Inset Grate . . . Ad. 4—1948
Eagle Open Fire Convector Grate Number 2 . Ad. 5—1948
Eagle Open Fire Convector Grate Number 4 . Ad. 6—1948
Eagle Open Fire Convector Grate Number 6 . Ad. 7—1948
Eagle Open Fire Convector Grate Number 8 Ad. 8—1948

SIDNEY FLAVEL & CO. LTD. PAGE

Metro A Inset Grate . . . . . . Ae. 1
Metro E116 Inset Grate . . . . . . Ae. 2—1948
Metro Boiler-Convector Unit . . . . Ae. 3—1948
Metro Series 35 Basket Grate . . . . Ae. 5
Metro Series 26 Independent Grate . . . Ae. 7

IDEAL BOILERS & RADIATORS LTD.

Ideal Neofire Number 2 . . . . . . Af. 1—1948

CHAS. LATHE & CO. LTD.

Claco Inset Grate . . . . . . Ag. 1—1948

NEWTON CHAMBERS & CO. LTD.

Redfyre Solid Smokeless Fuel Grate . . . Ah. 1—1948
Number 4 Redfyre Bacboiler with Open Fire . . Ah. 2—1948

DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
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SECTION A

OPEN FIRES

I. INTRODUCTION

The open coke fire provides a smokeless means of room heating by high temperature radiation. The modern coke grate complying to B.S.1251 has the same dimensions in plan as the standard coal stool bottom grate and can therefore be fitted into the standard chair or ' Milner ' fireback. The fire also provides hot water if the fireplace contains a suitably positioned back boiler. Multi-duty open fire units have been developed having the following combinations : first, grate and back boiler ; second, grate and convection warm air ; and third, grate, back boiler and convection jacket. These multi-duty appliances have a high thermal efficiency (of the order of 55 per cent.) and one of these can provide most of the space heating and domestic hot water supply of a small dwelling of up to 900 sq. ft. super. The arrangements of flues and ducts for the warmed air require special installation and fixing instructions, and these have therefore been included in this introductory note.

II. TYPES OF OPEN FIRES

Inset Open Fires. These are fitted into standard firebacks which may also incorporate a back boiler.

Open Fire and Back Boiler Unit. The coke fire may form part of a self-contained unit including a back boiler, with suitable flues and dampers. The boiler may be either of two types, the ordinary ' block ' boiler which will provide the normal needs of domestic hot water, or a ' large surface ' back boiler which will give a larger amount of hot water, usually sufficient for some radiator surface in addition to domestic hot water supply.

Convector Fires. These may be of either the single or double cased types. Air passing over the casing enclosing the firebrick is heated and directed into the same room, or conveyed by suitable ducts into other rooms. In the single case models the convected air heating space is formed between the unit and the suitably constructed builders' opening, and in the double case models the air heating space is between the two casings. Either of these types may be fitted with back boilers.

Freestanding Fires. Some of the above types may be built into a unit which is freestanding.

III. BASIS OF APPROVAL

(*a*) Dimensional and Constructional Standards

The principal dimensions and constructional features of open fires are now covered by British Standard 1251 : 1945 in which the appropriate section is headed " Stool Bottom Grates for use with Solid Smokeless Fuels." Reference should be made to this Specification for full details and the following provisions should be specially noted :—

i. All standard grates must incorporate a gas ignition burner thus providing convenience in lighting.

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ii. The air space between the firebars shall be $\frac{5}{8}$ in. $\pm$ $\frac{1}{16}$ in. thus providing adequate space for ash to fall into the ashpan and making possible a clean, bright fire.

iii. The fuel capacity of 0·4 cu. ft. for a 16 in. grate ensures a refuelling period at rated output of about $2\frac{1}{2}$ hours and at low burning rates, such as banking, of 6 hours.

iv. The air control damper must be a good fit and provision made so that all air entering the ashpit is controlled by the damper. This represents a big advance in open fire design and ensures adequate control of heat output, which leads to appreciable fuel economy.

v. Grate dimensions must be within set limits to ensure that all standard grates for household coal as well as solid smokeless fuels will fit the standard fireback.

vi. Firebacks are dealt with separately ; for solid smokeless fuels they should be sectioned either in four or six pieces.

(*b*) **Performance**

A standard of efficiency and performance for open fires has been agreed with the Ministry of Fuel and Power, and the appliances in this section of the catalogue meet the requirements of this standard, the details of which are given below.

Type of Appliance	*Radiation*		*Hot Water*	
	Efficiency Per cent.	*Output B.Th.U./hr. Average*	*Efficiency Per cent.*	*Output B.Th.U./hr. Average*
	not less than		not less than	
Open Fire	30	7,500	—	—
Open Fire with boiler	20	6,000	20	6,000
Open Fire with convection	Radiation and Convection not less than 40 per cent.			
Open Fire with convection and hot water	Radiation, Convection and Hot Water not less than 50 per cent.			

IV. INSTALLATION

(*a*) **Inset, Independent and Single Casing Convector Open Fires**

The installation of all types of open fires will be covered fully in the Code of Practice dealing with Independent Fires which is now in draft form. British Standard 1251 : 1945 covers the dimensions of the builders' openings, lintel, surrounds for inset open fires, etc. The part of the British Standard dealing with the lintel and throat construction has, however, been subject to criticism, and the arrangements in Figs. 1 and 2 for new construction overcome most of the objections raised. The chimney gather commences with an inward projection of 3 ins. at 30 ins. above hearth level. This construction is of advantage, since loose bricks can be placed on top and at the sides of the fireback, thus avoiding the enlargement cavity which, in most chimney constructions, hinders the free flow of combustion gases to the flue.

When an inset open fire with flush surround is to be installed, a curved lintel is fixed so that the curved portion starts at 26 ins. above hearth level. This 26 ins. is 2 ins. above the standard fireplace opening of 24 ins. and allows sufficient room for the replacement of the fireback should this become necessary. Fig. 2 shows the construction required for a 6 in.

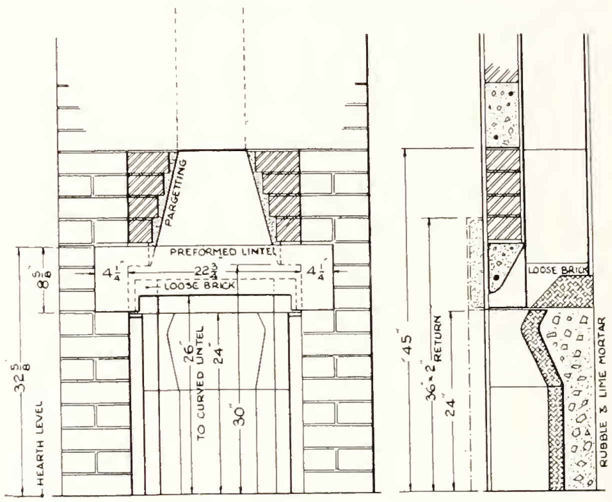
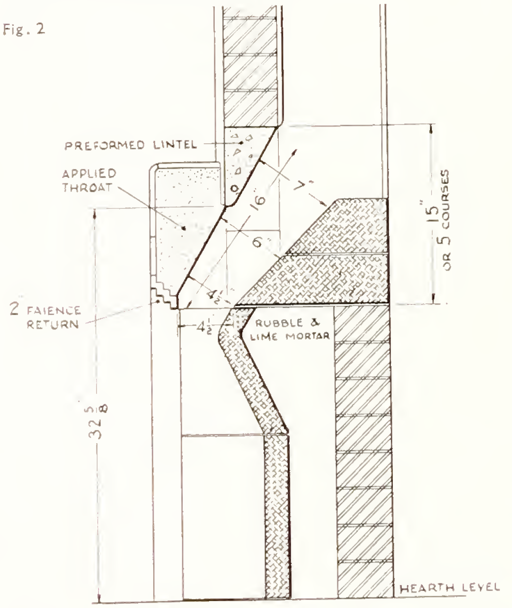


Fig. 1

projecting surround which has a faience return of 2 ins. thus giving a net projection of 4 ins. beyond the chimney breast. It will be noted that to form the front part of the throat the curved portion of the lintel has been raised to $32\frac{5}{8}$ ins., *i.e.*, two brick courses above that required for a flush surround, and that an applied throat has been provided on the surround. In cases where it is not known whether a flush or projecting surround will be fitted, the chimney may be constructed to leave about 5 loose brick courses in the chimney jambs to accommodate the curved lintel at a later stage. When the curved lintel is in position, then the space between it and a temporary chimney arch can be filled in with brick. It will be appreciated that the above construction applies to new installations and that inset open coke fires can easily be fixed to existing fireplaces without changing the fireback, providing it is in good condition and the dimensions approximate to British Standards.

Where a single case convector open fire or independent fire is to be fitted, a register plate should be inserted at 42 ins. above hearth level as indicated in Fig. 1, Section F—Heating Stoves. The convector open fires would be of the single casing type where the warm air either enters the room containing the appliance or into the room behind it. Convector open fires (*i.e.*, double casing type) with warm air ducts leading to upstairs rooms require the construction given in Fig. 3.

Fig. 2



(*b*) Convector Open Fires (double casing type)

This is a new type of appliance and it is important that the maker's instructions should be studied before the chimney is constructed. The general principles of installation will be clear from Fig. 3. The flue which may be of traditional brick construction but preferably of independent refractory sections, is supported on a concrete connecting block or lintel. A cast iron or protected sheet metal connecting flue joins the appliance to the concrete connecting block and takes the combustion gases. The off-set dimension of this connecting flue depends on the construction of the chimney breast and the thickness of the surround. All the makers of this type of appliance included in this section have agreed to the two types shown :—

(*a*) Suitable for a 4½ in. chimney breast.
(*b*) Suitable for a 2 in. chimney breast.

In installing a double casing type of convector it is specially important that convenient means of access is provided to the space containing the connecting flue so that any joints which may loosen can be made good. Access is also required to the back boiler flow and return connections. It is generally possible to provide a back access panel, but where this is impossible the fire surround should be of an easily removable type.

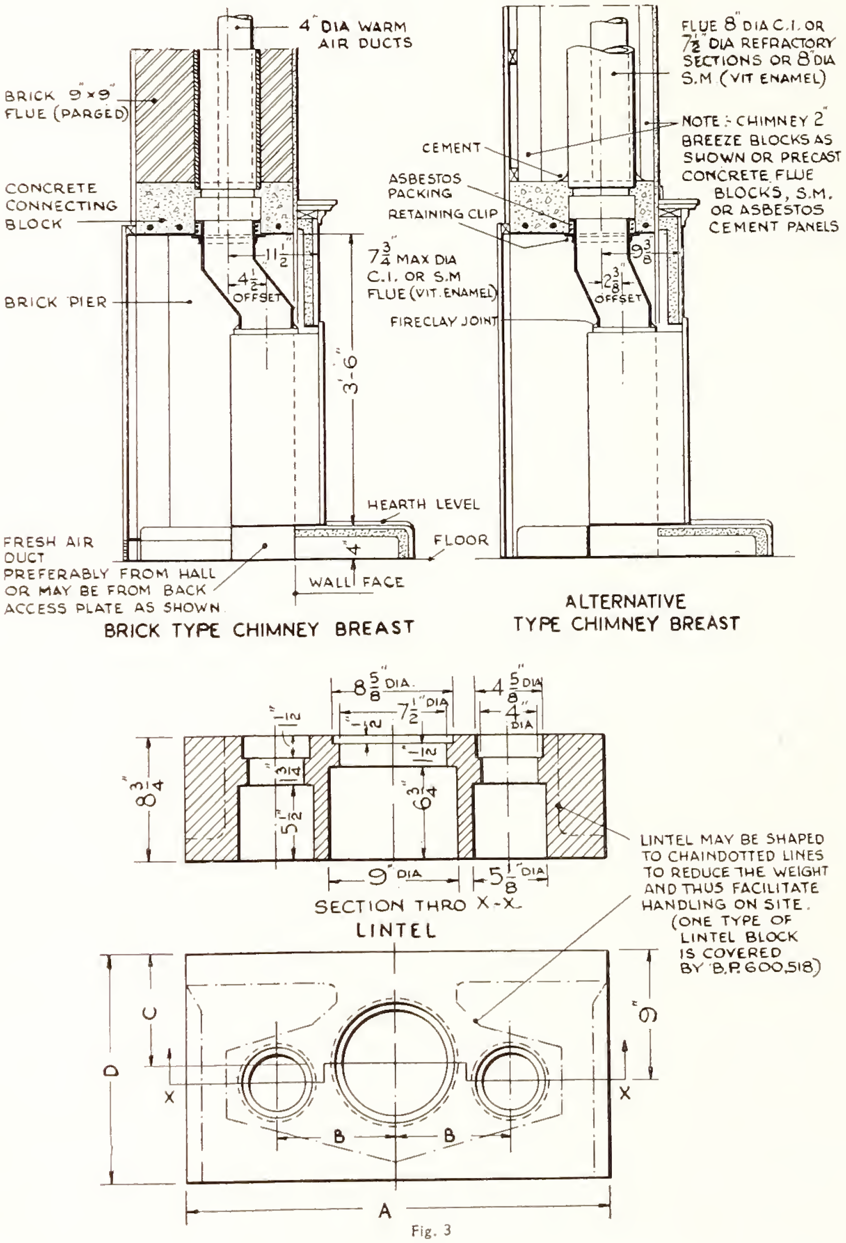


Fig. 3

(*c*) Open Fire with Block Back Boiler

Fig. 4 shows the installation of the British Standard block back boiler of dimensions 7 × 5 × 12 ins. A back flue and a flue damper are provided so that when hot water is required quickly or in greater quantity, the flue damper is opened and the hot gases pass under and round the back of the boiler. When the damper is shut, the water is heated only from the front of the boiler which is in contact with the hot coke.

To obtain the best results and greatest efficiency with this heating unit, care in building up the installation is necessary. It is strongly recommended that the general dimensions shown in Fig. 4 should be adhered to, and particularly the following :—

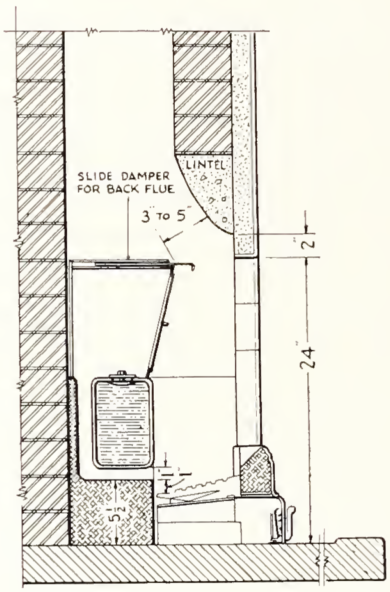


Fig. 4

Height to Base of Boiler	*Flue Space below Boiler*	*Height of Fire Opening*
Not less than 6½"	1–1½"	Standard 24". For existing installations not less than 20".

In no case should a coke grate be fitted to an existing fireplace opening with back boiler unless the base of the boiler is at least 6½ ins. above the hearth level. The flue beneath the boiler should be filled in if necessary, to reduce the height to 1 in.

In addition, the following special points should be noted :—

(1) The base of the boiler flue should be not less than 1 in. above the top of the fire-bars or stool bottom. The recommended minimum of 5½ ins. above hearth level would be suitable for the majority of grates used.

(2) If the back flueway is formed partly of brick and partly of metal, it is essential to ensure that an airtight seal is made at the junction of the brick and metalwork.

(3) The damper for closing the back flueway should slide easily and provide a substantially airtight seal for this flueway.

(4) For direct hot water supply systems a removable cast iron plate must be provided above the boiler to give access to the hand hole for descaling. This cast iron plate also provides facilities for cleaning the back flue.

It is essential that the dimensions of the brick structural opening should not be less than those indicated in Fig. 5 and it is advisable to enclose the boiler flow and return pipes in a vertical duct so that access is possible, particularly to the pipe connections to the boiler. A draw-off tap should always be fitted.

DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

For existing installations not only should the position of the boiler correspond to the figures given on Page A.5, but the dimensions of the fire opening should be within the limits stated in the following table ; otherwise it will generally be necessary to reconstruct the installation.

DIMENSIONS OF FIRE OPENINGS

Size of Fire	*Structural Opening*		*Width of Fire Opening (Y)*	*Width between Fire Bricks*		*Depth of Back Hearth (C)*
	Width (W)	*Depth (Z)*		*Front (A)*	*Back (B)*	
	Not less than					
14″	18″	14″	14″–14½″	12½″–13½″	7¾″– 8¾″	6⅜″–7½″
16″	22½″	14″	16″–16½″	14½″–15½″	9½″–10½″	6⅜″–7½″
18″	22½″	14″	18″–18½″	16½″–17½″	11½″–12½″	6⅜″–7½″

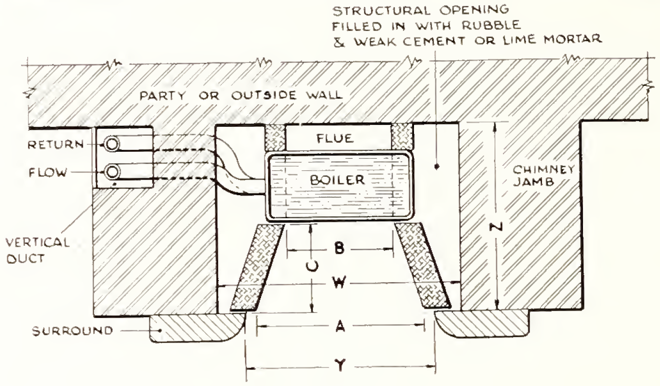


Fig. 5

V. METHOD OF OPERATION

A gas burner is incorporated in the grate and is used for lighting the fire. This obviates the necessity for paper and wood. The gas should be alight for 15 to 20 minutes only ; or, if a drawplate is used, for about 8 minutes.

Lighting

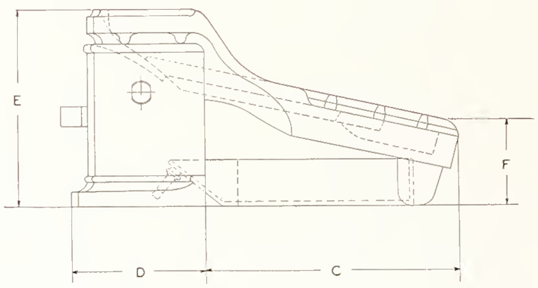
The fine ash is raked through the bars into the ashpan and the unburned fuel (cinders) is left on the grate, which is then filled to its maximum capacity with fuel. The ash-pit coverplate is removed, the ashpan emptied and when a match or taper is applied to the burner, the gas can be turned on. After 15 to 20 minutes, the fire will be well alight ; the gas can be turned off and the ashpit coverplate replaced, leaving the air damper full open. A good fire will be obtained within 40 minutes of lighting the gas and the air damper can then be adjusted to provide the desired heat output. If a drawplate is used to cover the fire opening during lighting, the fire will burn up to full heat output within 20 minutes.

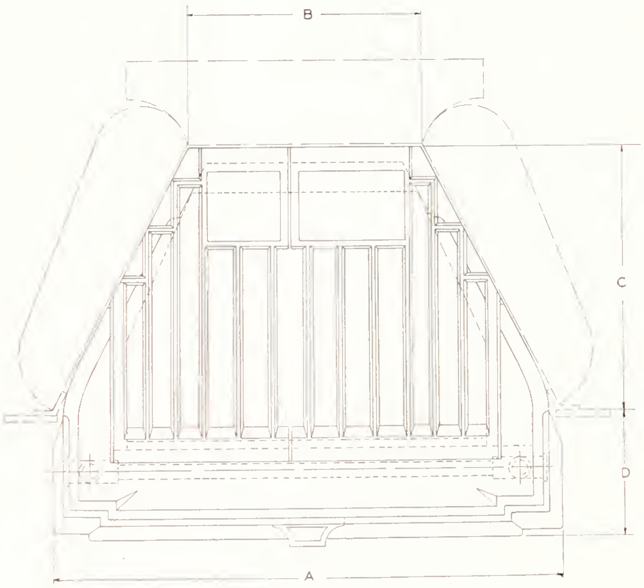
Ash

Normally the ashpan should be emptied once daily, but ash must not be allowed to accumulate to the extent of touching the grate bars. To collect all the ash, the ashpan should be pushed well to the back of the ashpit. The fire should be freed from ash before fresh fuel is added ; gentle raking from the front with a long, thin poker will remove the ash effectively.

PORTCULLIS INSET COKE GRATE

Bratt Colbran Ltd., 10, Mortimer Street, London, W.1





SPECIAL FEATURES.—It is recommended that this grate be installed with the special firebrick which is supplied by the manufacturers.

IGNITION.—Ignition is by luminous gas burner ; ¼″ connection can be made to either side and can be concealed.

FINISHES.—Cast iron and stove enamel.
Berlin black vitreous enamel.

COKE SIZE RECOMMENDED
No. 2 for Open Fires.

SIZES AND DIMENSIONS

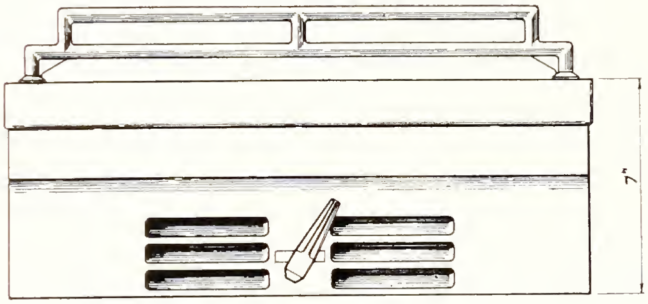
Size of Fire	*A*	*B*	*C*	*D*	*E*	*F*
14½″	15¼″	8⅜″	8½″	3¾″	6¾″	2⅞″
16″	16¼″	7½″	8⅝″	4″	6½″	2⅞″
18″	18″	7″	8⅝″	4″	6½″	2⅞″

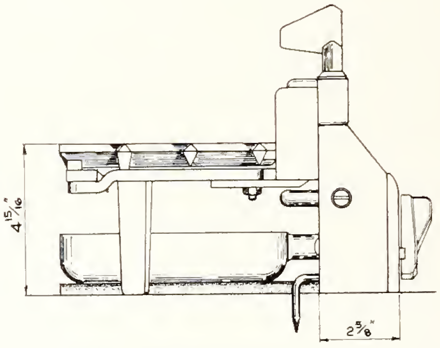
DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

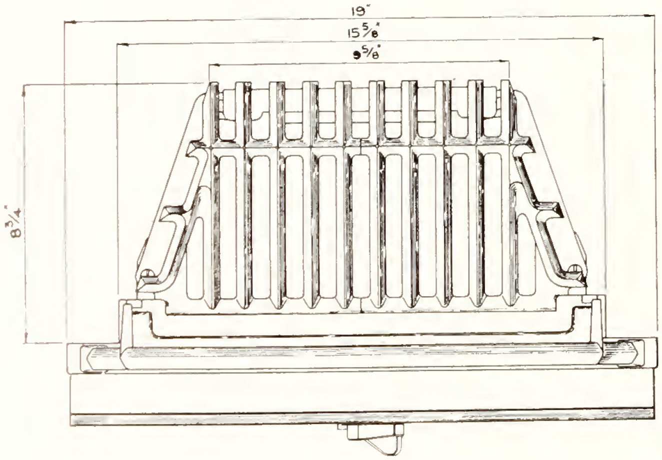
A. C. BEACON INSET GRATE

Orme, Evans & Co. Ltd., Great Brick Kiln Street, Wolverhampton.

London Office : 2 Eccleston Street, S.W.1.







SPECIAL FEATURES.—A deepening bar is supplied to increase the slow burning period of the fire. A flap air damper under the ashpit cover is controlled by a lever to give infinite adjustment. The ashpit is sealed between fire and surround face, two securing bolts fastening the fire frame to the hearth. The hearth should be floated over with sand and cement to the height of the front bottom strap and at the ends just to cover the securing bolts. The fire frame and grate are adjustable to standard firebacks. Heat resisting firebars are supplied as standard.

IGNITION is by luminous gas burner ; $\frac{1}{4}''$ gas connection may be made either side or can be concealed.

FINISH.—Beige and brown vitreous enamel front and deepening bar.

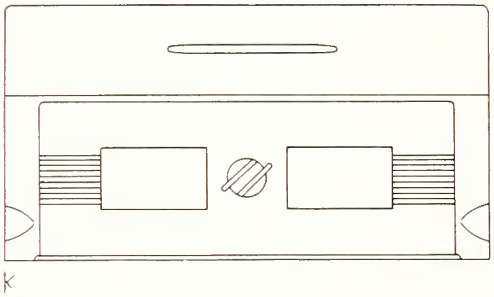
COKE SIZE RECOMMENDED : Number 2 for Open Fires.

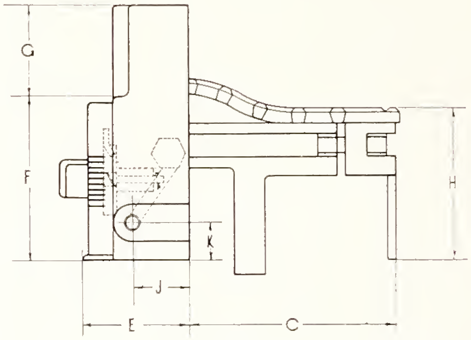
DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

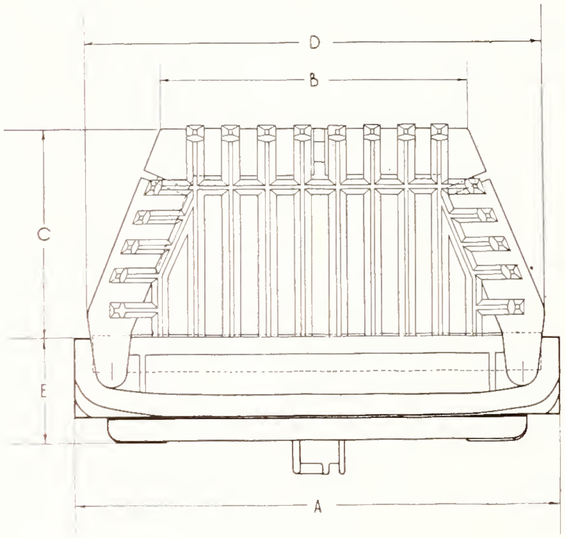
THE ZENITH SMOKELESS FUEL GRATE

Allied Ironfounders Ltd.

37–41 Mortimer Street, London, W.1







SPECIAL FEATURES.—Designed with adjustable sliding bottom grate frame which enables it to be fitted into existing 16 in. openings.

IGNITION by luminous gas burner, ¼ inch connection can be made to either side of grate or may be concealed.

FINISH.—Vitreous enamel front—Black or Beige; Alisheen Black or Bramble.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

SIZES AND DIMENSIONS

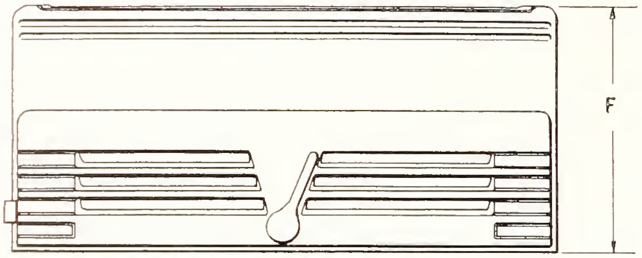
Size of Fire	*A*	B		C		D		E	F	G	H	J	K
		Min.	*Max.*	*Min.*	*Max.*	*Min.*	*Max.*						
16″	15¾″	10″	10½″	6¾″	7¼″	15″	15½″	3½″	5⅛″	3⅛″	4¾″	1⅞″	1¼″

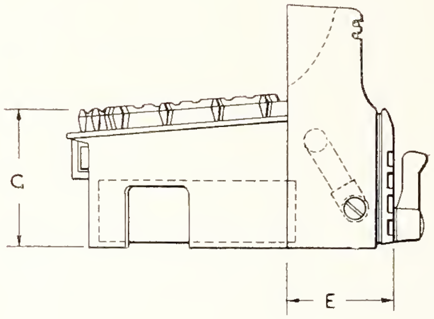
DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

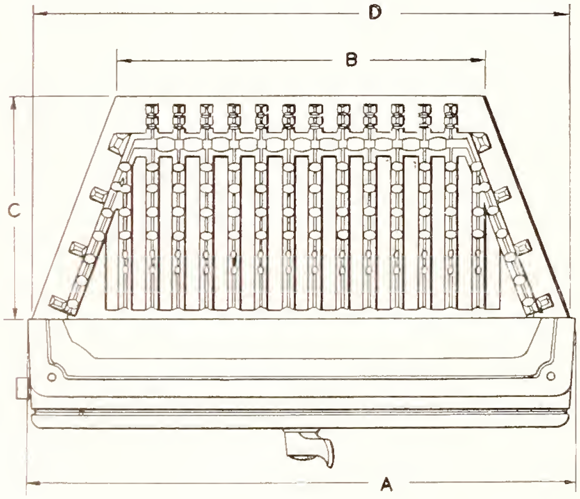
FULHAM INSET GRATE

The Eagle Range & Grate Co. Ltd., Aston, Birmingham, 6.

London Office : 7 Stratford Place, W.1.







SPECIAL FEATURES.—An open grate of the sealed ashpit type with machine faced flap air damper, controlled by means of a curved wedge giving infinite adjustment to a maximum opening of 13 sq. ins. Fire-front is backed with refractory lining. The front of the grate is located to the firebar supporting frame, which is designed to deflect ash into the ashpan.

A wrought iron or copper back boiler with self-contained flue and damper, and/or a convector heater can be installed with this grate in sizes 16″ and 18″. See pages Ad.5–Ad.8 inclusive.

IGNITION.—Ignition is by luminous gas burner ; $\frac{1}{4}$″ gas connection can be made to either side of grate and can be concealed. A trivet can be supplied.

FINISHES.—Vitreous enamelled—black, stone, brown, green or blue-grey.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

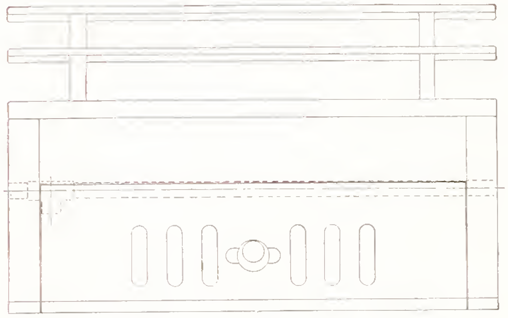
SIZES AND DIMENSIONS

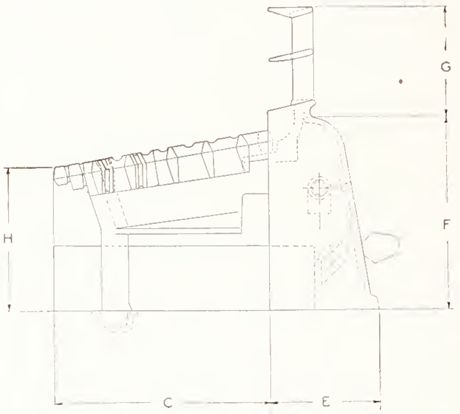
Size of Fire	*A*	*B*		*C*		*D*	*E*	*F*	*G*
		Max.	*Min.*	*Max.*	*Min.*				
14″	$13\frac{3}{4}$″	$8\frac{1}{2}$″	8″	$7\frac{1}{4}$″	$6\frac{3}{4}$″	$13\frac{1}{4}$″	$3\frac{7}{16}$″	8″	$4\frac{1}{2}$″
16″	$15\frac{3}{4}$″	$9\frac{3}{4}$″	$10\frac{1}{4}$″	$7\frac{1}{4}$″	$6\frac{3}{4}$″	$15\frac{1}{2}$″	$3\frac{7}{16}$″	8″	$4\frac{1}{2}$″
18″	$17\frac{3}{4}$″	$11\frac{3}{4}$″	$12\frac{1}{4}$″	$7\frac{1}{4}$″	$6\frac{3}{4}$″	$17\frac{1}{2}$″	$3\frac{7}{16}$″	8″	$4\frac{1}{2}$″

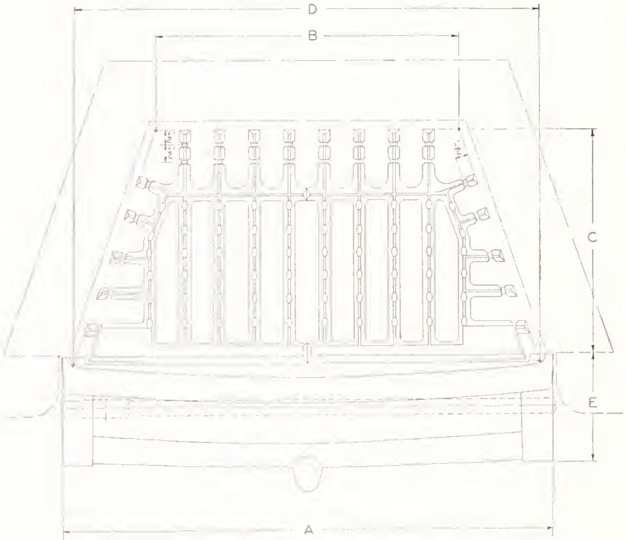
DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

EAGLE MODEL 1052 A INSET COKE GRATE

The Eagle Range & Grate Co. Ltd., Aston, Birmingham 6.
London Office : 7, Stratford Place, W.1.







SPECIAL FEATURES.—Heat-resisting firebars are fitted as standard. If the sizes of existing openings differ considerably from B, C and D as tabulated, standard firebrick insulation can be supplied, sizes as under :

Size of Fire	*Width at Front*	*Width at Back*	*Depth*
14″	13¼″	8¼″	7¼″
16″	15½″	10″	7¼″
18″	17½″	12″	7¼″

IGNITION.—Ignition is by luminous gas burner ; ¼″ connection can be made to either side of grate, and can be concealed.

FINISHES.—Fine cast and stove enamel. Black vitreous enamel. Brown or Green porcelain enamel. Grey mottled porcelain enamel. * Chromium-plated front.

* NOTE.—The temperature attained by coke fires is such as to cause discoloration if the whole of the front is chromium plated. Partially chromium-plated fronts are, however, satisfactory.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

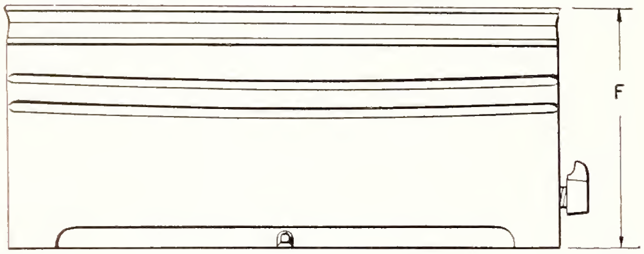
SIZES AND DIMENSIONS

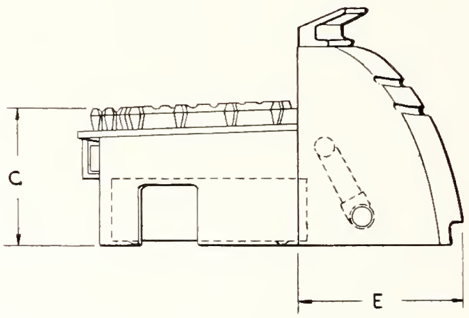
Size of Fire	*A **	*B*		*C*		*D*		*E **	*F **	*G **	*H*	
		*Max.**	*Min.*	*Max.**	*Min.*	*Max.**	*Min.*				*Max.**	*Min.*
14″	13⅞″	8½″	7¾″	7¼″	6¼″	12¾″	11¾″	3½″	7″	3″	4⅝″	4½″
16″	15⅞″	10½″	9″	7¼″	6¼″	15″	14″	3½″	7″	3″	4⅝″	4½″
18″	17⅞″	12½″	11¾″	7¼″	6¼″	17″	16″	3½″	7″	3″	4⅝″	4½″

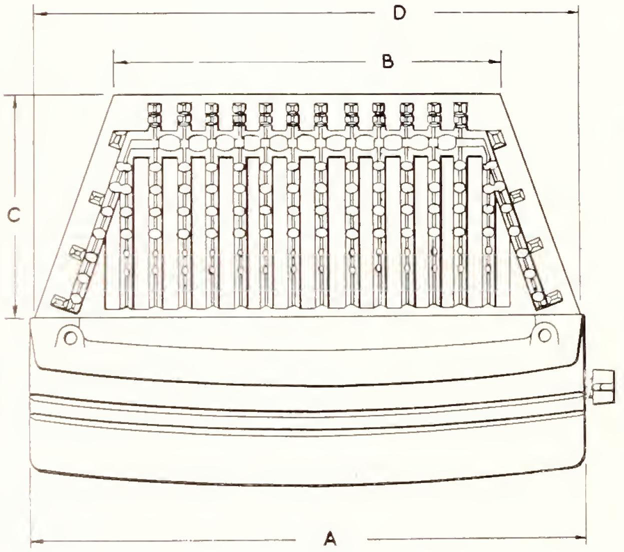
* *Standard dimensions. Others to be specially ordered.*

EAGLE SUTTON NUMBER 1 INSET GRATE

The Eagle Range & Grate Co. Ltd., Aston, Birmingham, 6.
London Office : 7 Stratford Place, W.1







SPECIAL FEATURES.—An open grate of the sealed ashpit type ; a flap air damper under the ashpit cover with side lever controls combustion. Fire-front is backed with refractory lining. The front of the grate is located to the firebar supporting frame, which is designed to deflect ash into the ashpan.

A wrought iron or copper back boiler with self-contained flue and damper, and/or a convector heater can be installed with this grate in sizes 16″ and 18″. See pages Ad.5–Ad 8 inclusive.

IGNITION.—Ignition is by luminous gas burner ; ¼″ gas connection can be made to either side of grate and can be concealed. A trivet can be supplied.

FINISHES.—Vitreous enamelled—black, stone, brown, green or blue-grey.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

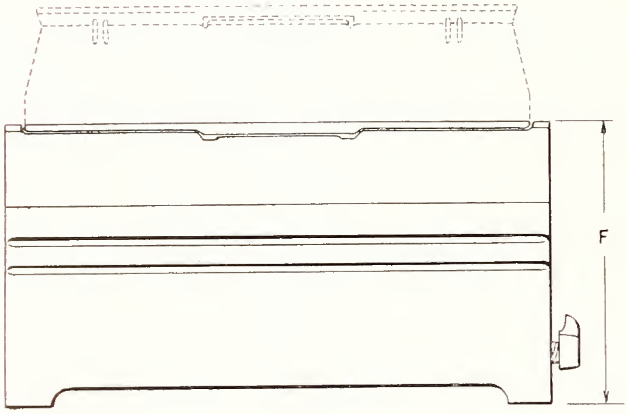
SIZES AND DIMENSIONS

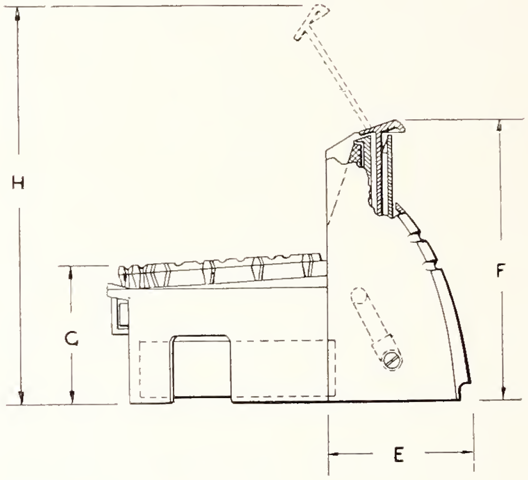
Size of Fire	*A*	*B*		*C*		*D*	*E*	*F*	*G*
		Max.	*Min.*	*Max.*	*Min.*				
14″	13¾″	8½″	8″	7¼″	6¾″	13¼″	5½″	9¼″	4½″
16″	15¾″	10¼″	9¾″	7¼″	6¾″	15½″	5½″	9¼″	4½″
18″	17¾″	12¼″	11¾″	7¼″	6¾″	17½″	5½″	9¼″	4½″

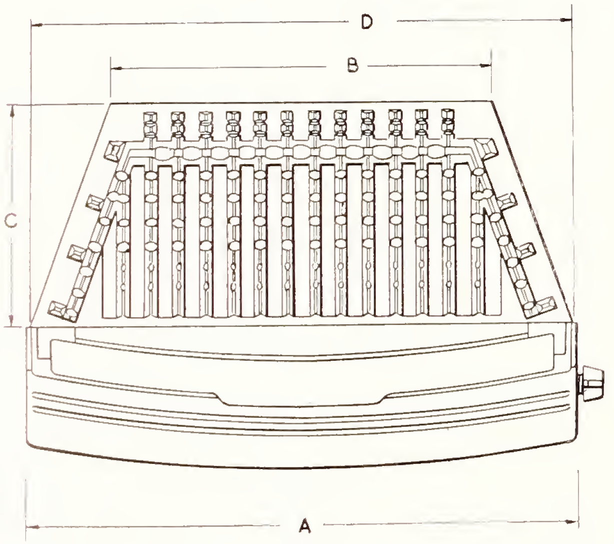
EAGLE SUTTON NUMBER 2 INSET GRATE

FOR ALL-NIGHT BURNING

The Eagle Range & Grate Co. Ltd., Aston, Birmingham, 6.
London Office : 7 Stratford Place, W.1.







SPECIAL FEATURES.—An open grate of the sealed ashpit type designed for all-night burning by means of a fuel retainer plate which when raised increases the fuel space. When not required the plate drops back into a recess in the ashpit cover. A flap air damper under the ashpit cover, with side lever, controls combustion. The fire-front is backed with refractory lining. The front of the grate is located to the firebar supporting frame, which is designed to deflect ash into the ashpan.

A wrought iron or copper back boiler with self-contained flue and damper, and/or a convector heater can be installed with this grate in sizes 16″ and 18″. See pages Ad.5–Ad.8 inclusive.

IGNITION.—Ignition is by luminous gas burner ; ¼″ gas connection can be made to either side of grate and can be concealed. A trivet can be supplied.

FINISHES.—Vitreous enamelled—black, stone, brown, green or blue-grey.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

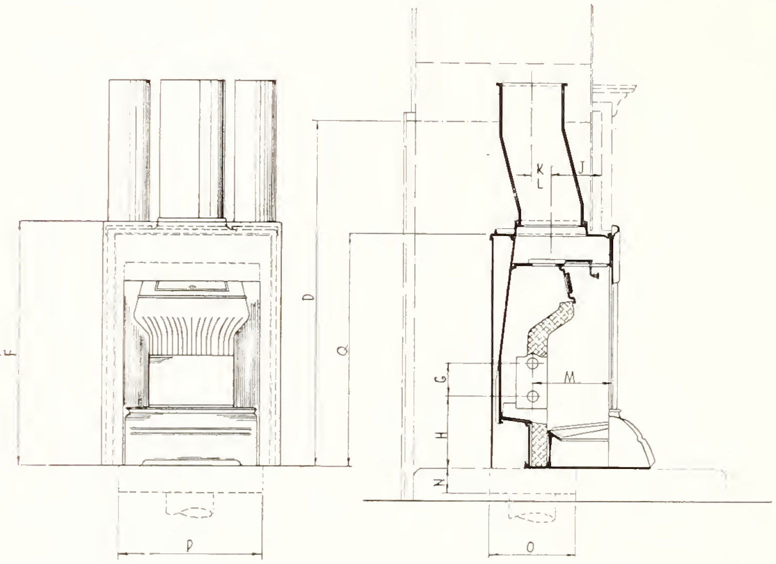
SIZES AND DIMENSIONS

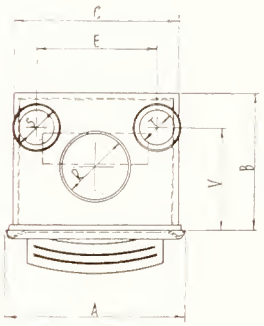
Size of Fire	A	B		C		D	E	F	G	H
		Max.	Min.	Max.	Min.					
14″	13¾″	8½″	8″	7¼″	6¾″	13¼″	4 11/16″	9¼″	4½″	13″
16″	15¾″	10¼″	9¾″	7¼″	6¾″	15½″	4 11/16″	9¼″	4½″	13″
18″	17¾″	12¼″	11¾″	7¼″	6¾″	17½″	4 11/16″	9¼″	4½″	13″

EAGLE OPEN FIRE CONVECTOR GRATE
NUMBER 2

INTERIOR METAL FRONT CASE TO FIT IN FRONT OF SURROUND WITH DOUBLE CASING AND WITH WROUGHT IRON OR COPPER BOILER

The Eagle Range & Grate Co. Ltd., Aston, Birmingham, 6.
London Office : 7 Stratford Place, W.I.





This heater incorporates an open fire and is designed to provide warm convected air to one or more adjoining rooms.

The " Fulham " or " Sutton " inset grate is set in a self-contained one-piece casing which forms the back and sides of a fire box lined inside with firebrick. The whole stands on a cast iron baseplate.

A duct should be provided to supply fresh air from outside the room to pass round the casing where it is heated. It is then directed by ducts to the room in which the stove is fitted, or, alternatively, to adjoining rooms on the same floor or above.

The flue socket is 7″ diameter and should be connected to the main flue by an adapter. The fireplace should be constructed to take the standard adapter of which dimensions are given below. Maker's installation instructions should be obtained before building the fireplace. Two warmed air duct sockets 4½″ diameter are provided suitable for asbestos cement or other suitable ducting.

FINISH.—Visible parts in vitreous enamel—black, stone, brown, green or blue-grey. The metal casing has a heat and corrosion resisting grip coat vitreous enamel finish.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

SIZES AND DIMENSIONS

Size of Fire	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K* *	*L* †	*M*	*N*	*O*	*P*	*Q*	*R*	*S*	*T*	*V*
16″	21″	14¼″	20″	42″	14″	29″	4″	8½″	7″	4½″	2⅜″	9¼″	3″	10″	17″	28″	8″	5″	4″	11½″

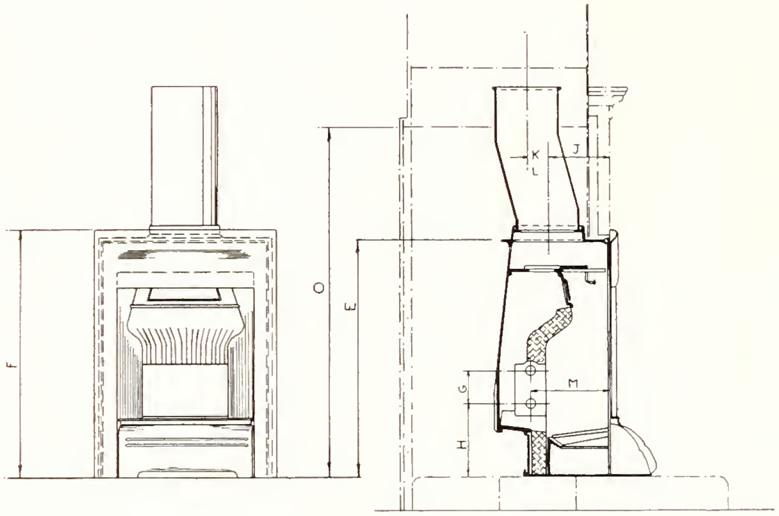
* *Chimney Breast, 4½″ Brick.*

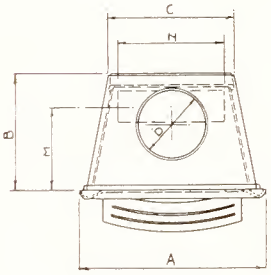
† *Chimney Breast, 2″ Blocks.*

EAGLE OPEN FIRE CONVECTOR GRATE
NUMBER 4

INTERIOR METAL FRONT CASE TO FIT IN FRONT OF SURROUND WITH SINGLE CASING AND WITH WROUGHT IRON OR COPPER BOILER

The Eagle Range & Grate Co. Ltd., Aston, Birmingham, 6.
London Office : 7 Stratford Place, W.1.





This heater incorporates an open fire and is designed to provide warm convected air in the same or an adjoining room.

The "Fulham" or "Sutton" inset grate is set in a self-contained one-piece casing which forms the back and sides of a fire box lined inside with firebrick. The whole appliance is built into a brick recess, the walls of which form the outer casing of the convector chamber. The whole stands on a cast iron baseplate.

A duct should be provided to supply fresh air from outside the room to pass under and round the casing where it is heated. It is then directed by a duct into which the convector is built to an adjoining room on the same floor or above. Alternatively, if the fire is to be used only for heating the room in which it is installed, arrangements should be made for air to be drawn from the room into the convector casing and returned to the room at a point above the fire.

The flue socket is 7″ diameter and should be connected to the main flue by an adapter. The fireplace should be constructed to take the standard adapter of which dimensions are given below. Maker's installation instructions should be obtained before building the fireplace.

FINISH.—Visible parts in vitreous enamel—black, stone, brown, green or blue-grey. The metal casing has a heat and corrosion resisting grip coat vitreous enamel finish.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

SIZES AND DIMENSIONS

Size of Fire	A	B	C	D	E	F	G	H	J	K *	L †	M	N	O
16″	21″	13½″	14¾″	8″	28″	29″	4″	8½″	7″	4½″	2⅜″	9¼″	12⅝″	42″

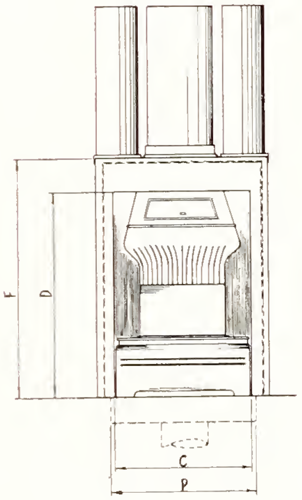
* *Chimney Breast, 4½″ Brick.* † *Chimney Breast, 2″ Blocks.*

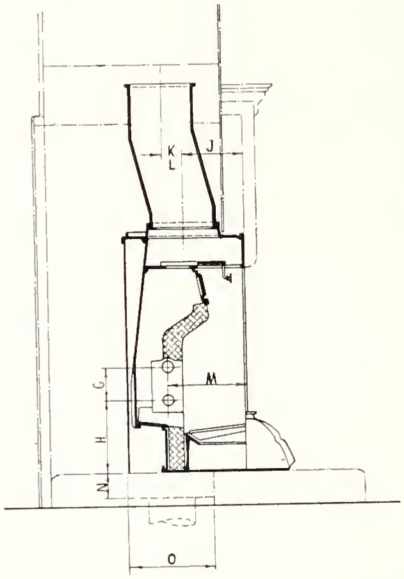
EAGLE OPEN FIRE CONVECTOR GRATE

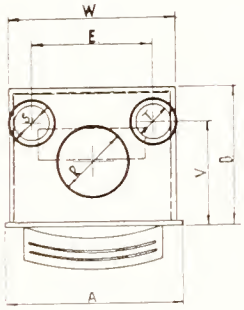
NUMBER 6

PLAIN FRONT TO FIT BEHIND SURROUND WITH DOUBLE CASING AND WITH WROUGHT IRON OR COPPER BOILER

The Eagle Range & Grate Co. Ltd., Aston, Birmingham, 6.
London Office : 7 Stratford Place, W.1.







This heater incorporates an open fire and is designed to provide warm convected air to one or more adjoining rooms.
The "Fulham" or "Sutton" inset grate is set in a self-contained one-piece casing which forms the back and sides of a fire box lined inside with firebrick. The whole stands on a cast iron baseplate.
A duct should be provided to supply fresh air from outside the room to pass round the casing where it is heated. It is then directed by ducts to the room in which the stove is fitted, or, alternatively, to adjoining rooms on the same floor or above.
The flue socket is 7″ diameter and should be connected to the main flue by an adapter. The fireplace should be constructed to take the standard adapter of which dimensions are given below. Maker's installation instructions should be obtained before building the fireplace. Two warmed air duct sockets 4½″ diameter are provided suitable for asbestos cement or other suitable ducting.

FINISH.—Visible parts in vitreous enamel—black, stone, brown, green or blue-grey. The metal casing has a heat and corrosion resisting grip coat vitreous enamel finish.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

SIZES AND DIMENSIONS

Size of Fire	A	B	C	D	E	F	G	H	J	K *	L †	M	N	O	P	R	S	T	V	W
16″	20″	14¼″	16″	24″	14″	28″	4″	8½″	7″	4½″	2⅜″	9¼″	3″	10″	17″	8″	5″	4″	11½″	20″

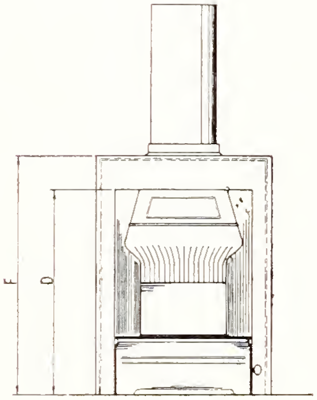
* *Chimney Breast, 4½″ Brick.*
† *Chimney Breast, 2″ Blocks.*

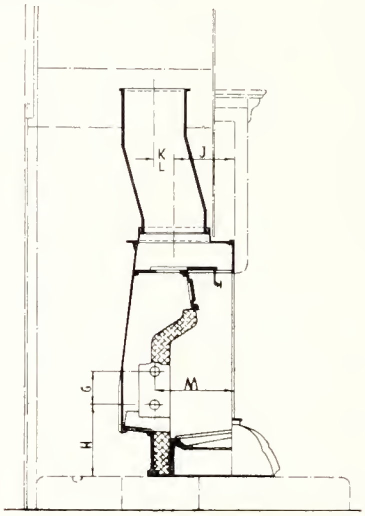
DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

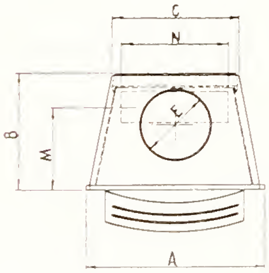
EAGLE OPEN FIRE CONVECTOR GRATE NUMBER 8

PLAIN FRONT TO FIT BEHIND SURROUND WITH SINGLE CASING AND WITH WROUGHT IRON OR COPPER BOILER

The Eagle Range & Grate Co. Ltd., Aston, Birmingham, 6.
London Office : 7 Stratford Place, W.1.







This heater incorporates an open fire and is designed to provide warm convected air in the same or an adjoining room.

The "Fulham" or "Sutton" inset grate is set in a self-contained one-piece casing which forms the back and sides of a fire box lined inside with firebrick. The whole appliance is built into a brick recess, the walls of which form the outer casing of the convector chamber. The whole stands on a cast iron baseplate.

A duct should be provided to supply fresh air from outside the room to pass under and round the casing where it is heated. It is then directed by a duct into which the convector is built to an adjoining room on the same floor or above. Alternatively, if the fire is to be used only for heating the room in which it is installed, arrangements should be made for air to be drawn from the room into the convector casing and returned to the room at a point above the fire.

The flue socket is 7″ diameter and should be connected to the main flue by an adapter. The fireplace should be constructed to take the standard adapter of which dimensions are given below. Maker's installation instructions should be obtained before building the fireplace.

FINISH.—Visible parts in vitreous enamel—black, stone, brown, green or blue-grey. The metal casing has a heat and corrosion resisting grip coat vitreous enamel finish.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

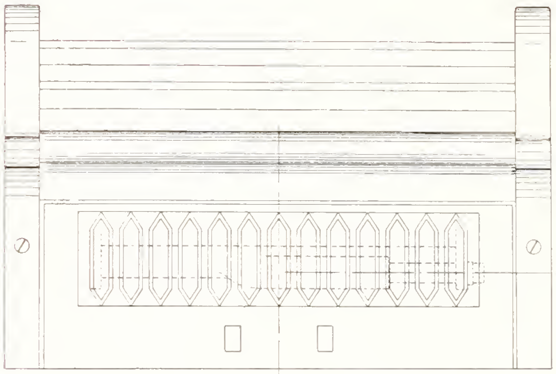
SIZES AND DIMENSIONS

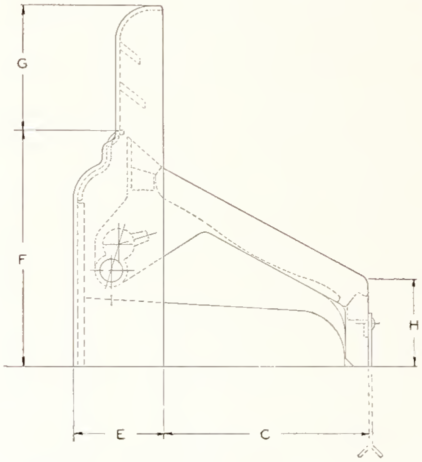
Size of Fire	A	B	C	D	E	F	G	H	J	K *	L †	M	N
16″	20″	13½″	14¾″	24″	8″	23″	4″	8½″	7″	4½″	2⅜″	9¼″	12⅝″

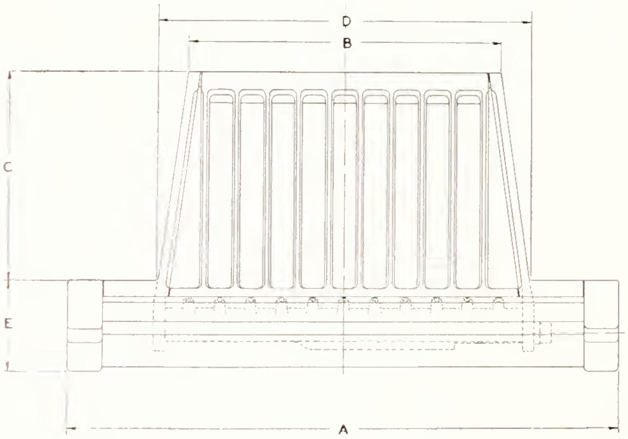
* *Chimney Breast, 4½″ Brick.* † *Chimney Breast, 2′ Blocks.*

METRO A INSET COKE GRATE

Sidney Flavel & Co. Ltd., Eagle Foundry, Leamington.
London Office : 38, Welbeck Street, London, W.1.







SPECIAL FEATURES.—This model can be supplied with slightly higher front and additional bar where a fiercer burning fire is required. The fire is arranged with a wide front for screwing to an existing surround, the conversion being completed by building in special firebrick insulation. To ensure the utmost efficiency the grate should be surrounded by close-fitting firebrick insulation at back and sides, and in the case of old pattern openings it is necessary to cut away the existing back and replace with a special brick conversion set, depth overall being 9½″, height overall 28″.

IGNITION.—Ignition is by atmospheric gas burner ; ¼″ connection can be made to either side of grate, or can be concealed.

FINISHES.—Fine cast Black. Black porcelain enamel. Porcelain enamel in various colours. *Chromium-plated front.

* NOTE.—The temperature attained by a coke fire is such as to cause discoloration if the whole of the front is chromium plated. Partially chromium-plated fronts are, however, satisfactory.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

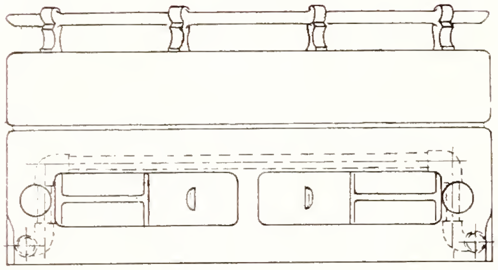
SIZES AND DIMENSIONS

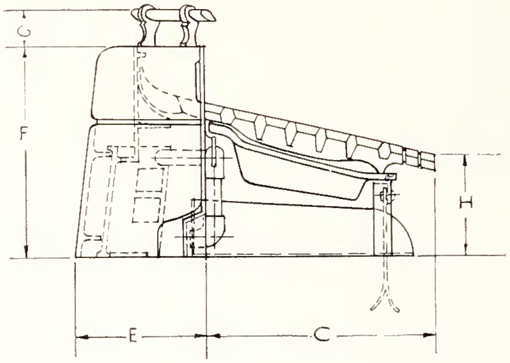
Size of Fire	*Ref. No.*	*To Suit Openings*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
10″	M1410/2/3	12″	13¾″	8⅛″	6¾″	10″	3″	7¾″	4¼″	2⅝″
10″	M1510/2/3	12″–13″	14¾″	8⅛″	6¾″	10″	3″	7¾″	4¼″	2⅝″
10″	M1610/2/3	12″–14″	15¾″	8⅛″	6¾″	10″	3″	7¾″	4¼″	2⅝″
12″	M1612/2/3	14″	15¾″	10⅛″	6¾″	12″	3″	7¾″	4¼″	2⅝″
12″	M1712/2/3	14″–15″	16¾″	10⅛″	6¾″	12″	3″	7¾″	4¼″	2⅝″
12″	M1812/2/3	14″–16″	17¾″	10⅛″	6¾″	12″	3″	7¾″	4¼″	2⅝″
14″	M1814/2/3	16″	17¾″	12⅛″	6¾″	14″	3″	7¾″	4¼″	2⅝″
14″	M1914/2/3	16″–17″	18¾″	12⅛″	6¾″	14″	3″	7¾″	4¼″	2⅝″
14″	M2014/2/3	16″–18″	19¾″	12⅛″	6¾″	14″	3″	7¾″	4¼″	2⅝″
16″	M2016/2/3	18″	19¾″	14⅛″	6¾″	16″	3″	7¾″	4¼″	2⅝″
16″	M2116/2/3	18″–19″	20¾″	14⅛″	6¾″	16″	3″	7¾″	4¼″	2⅝″
16″	M2116/2/3	18″–20″	21¾″	14⅛″	6¾″	16″	3″	7¾″	4¼″	2⅝″

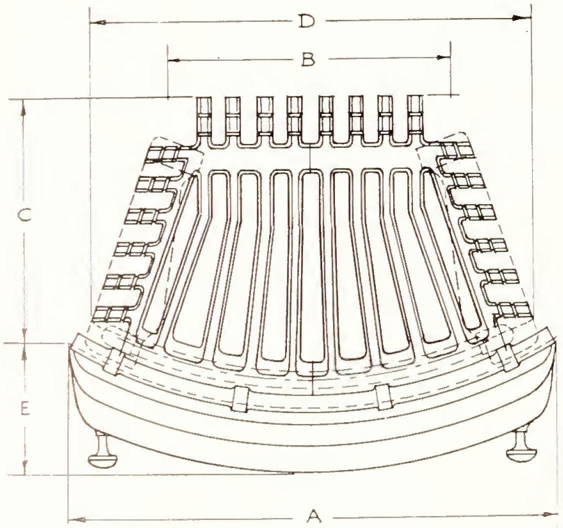
DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

METRO E116 INSET GRATE

Sidney Flavel & Co. Ltd., Eagle Foundry, Leamington.







SPECIAL FEATURES.—The bottom grate is easily adjustable to suit an existing fire opening, within the limits specified in the table below. A deepening bar is supplied for fitting to the front of the grate to increase the coke capacity.

The rate of burning is controlled by two sliding ventilator plates.

Ash is directed into the ashpan by means of deflecting plates fixed to the bottom frame.

A splayed peg is provided to locate the grate frame in position.

IGNITION.—Ignition is by luminous burner; ¼″ gas connection can be made either side of grate or may be concealed.

FINISHES.—Black vitreous enamel.

COKE SIZE RECOMMENDED: Number 2 for Open Fires.

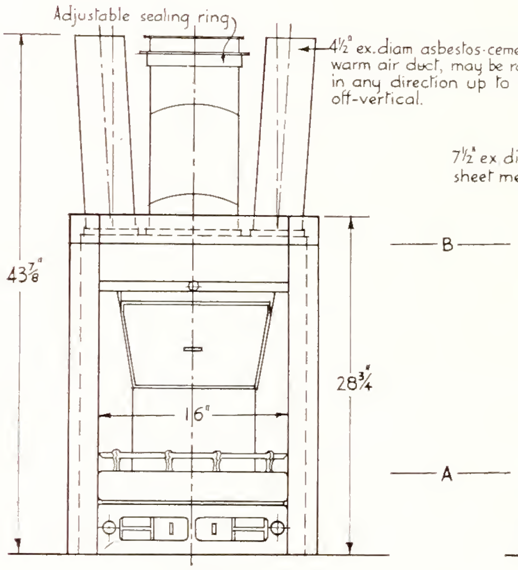
SIZES AND DIMENSIONS

Size of Fire	A	B		C		D		E	F	G	H
		Min.	*Max.*	*Min.*	*Max.*	*Min.*	*Max.*				
16″	15¾″	8⅞″	10⅞″	6½″	8″	15¼″	14″	3⅜″	7″	1½″	3¼″

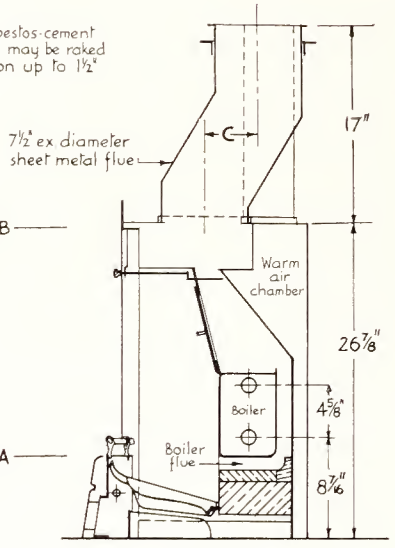
DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

METRO BOILER-CONVECTOR UNIT

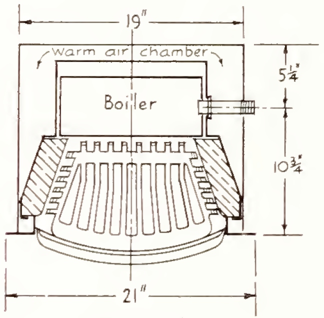
Sidney Flavel & Co. Ltd., Eagle Foundry, Leamington.



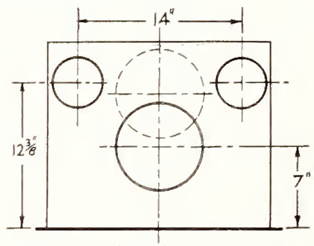
ELEVATION



CENTRE SECTION



PLAN AT A



Broken line shows position of Sheet Metal Flue at top

PLAN AT B

This heater incorporates the 16″ Metro Inset grate (see page Ae.2) and is designed to provide warm convected air to one or more adjoining rooms.

The grate is set in a self-contained one-piece casing which forms the back and sides of a fire box, lined inside with firebrick.

A copper back boiler without cleaning door is included, with 1″ B.S.P. tappings at right or left hand. The boiler should be connected to an " indirect " hot water system.

A boiler flue sliding damper to control combustion is fitted and a flue inspection door is supplied. The firebrick flue way beneath boiler is 1″ deep.

The main sheet metal flue is 7½″ diameter ; there are two standard offsets (dimension C) for use with " True Flue " lintel blocks : for S type—2⅜″, for S.B. type—4½″. The flue fits into a spigot on the top plate. For other types of flue installations the maker's installation instructions should be obtained before building the fireplace.

Two 4½″ diameter asbestos cement warmed air ducts to fit spigots on top plate are provided. Two side apertures for cold air intake to convector casing are provided at hearth level.

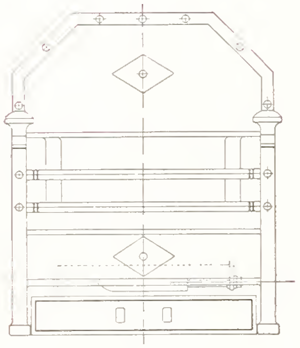
FINISH.—Interior rim in black vitreous enamel ; boiler flue primed with red oxide and finished with aluminium paint ; flue box and main flue of sheet metal finished black vitreous enamel.

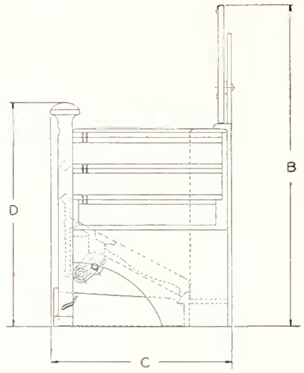
COKE SIZE RECOMMENDED : Number 2 for Open Fires.

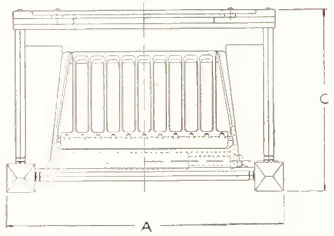
METRO SERIES 35 BASKET COKE GRATE

Sidney Flavel & Co. Ltd., Eagle Foundry, Leamington.

London Office : 38, Welbeck Street, London, W.1.







SPECIAL FEATURES.—A basket coke grate, fitted with a Metro A type bottom grate of heat-resisting metal.

IGNITION.—Ignition is by atmospheric gas burner ; ¼" connection can be made to either right- or left-hand side or may be concealed.

FINISHES.—Fine cast and Blacked. Rough armour.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

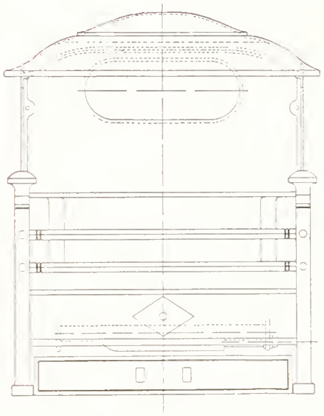
SIZES AND DIMENSIONS

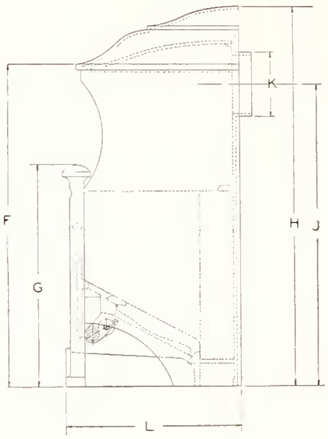
Size of Fire	*Ref. No.*	*A*	*B*	*C*	*D*
10"	M.135	16"	20¾"	11¾"	14½"
12"	M.235	18"	20¾"	11¾"	14½"
14"	M.435	20"	20¾"	11¾"	14½"
16"	M.635	22"	20¾"	11¾"	14½"

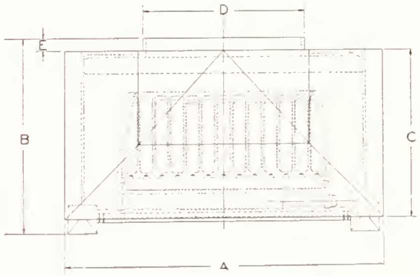
METRO SERIES 26 INDEPENDENT COKE GRATE

Sidney Flavel & Co. Ltd., Eagle Foundry, Leamington.

London Office : 38, Welbeck Street, London, W.I.







SPECIAL FEATURES.—An Independent Coke Grate fitted with a Metro A type bottom grate of heat-resisting metal.

IGNITION.—Ignition is by atmospheric gas burner ; ¼″ connection can be made to either right- or left-hand side or may be concealed.

FINISHES.—Fine cast and Blacked. Rough armour.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

SIZES AND DIMENSIONS

Size of Fire	*Ref. No.*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K*	*L*
10″	M–126	16½″	12¾″	10¾″	8¼″	¾″	21″	14½″	24¾″	20⅛″	4¼″	11½″
12″	M–226	18½″	12¾″	10¾″	10¼″	¾″	21″	14½″	24¾″	20⅛″	4¼″	11½″
14″	M–426	20½″	12¾″	10¾″	12¼″	¾″	21″	14½″	24¾″	20⅛″	4¼″	11½″
16″	M-626	22½″	12¾″	10¾″	12¼″	¾″	21″	14½″	24¾″	20⅛″	4¼″	11½″

IDEAL NEOFIRE NUMBER 2

FOR CENTRAL HEATING AND INDIRECT HOT WATER SUPPLY

(Patent applied for)

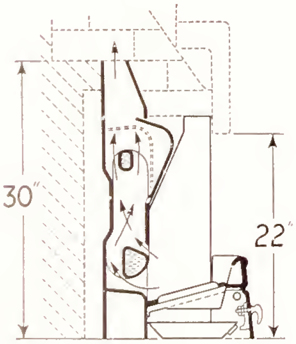
Ideal Boilers & Radiators Ltd., Hull.
London Office : Ideal House, Gt. Marlborough Street, W.1.

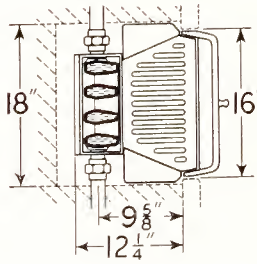
The Ideal Neofire is designed to take care of approximately 40 sq. ft. of direct radiation, plus an average amount of piping, and to provide hot water for domestic purposes by the "Indirect" method with the No. OOC Ideal Indirect Cylinder (20 galls.).

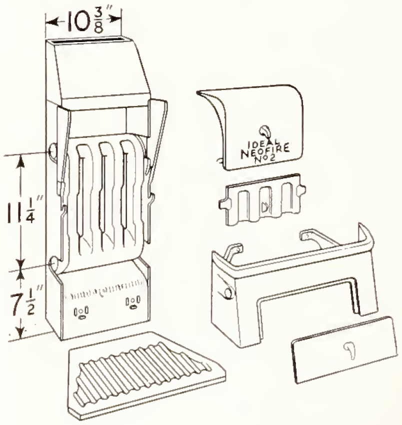
It has a specially designed boiler with 1¼″ flow and return tappings on both sides. The grate is designed for coke and is fitted with a gas ignition burner. The Ideal Neofire will fit any tiled surround with a standard 16-inch opening.

STANDARD FINISH.—Cream mottled vitreous enamel. Gas ignition cock is provided as standard on L.H. side, but can be furnished on R.H. side to special order.

DIMENSIONS





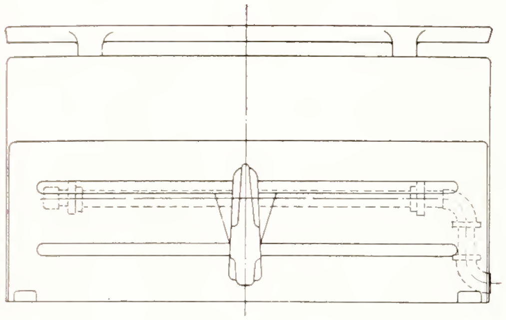


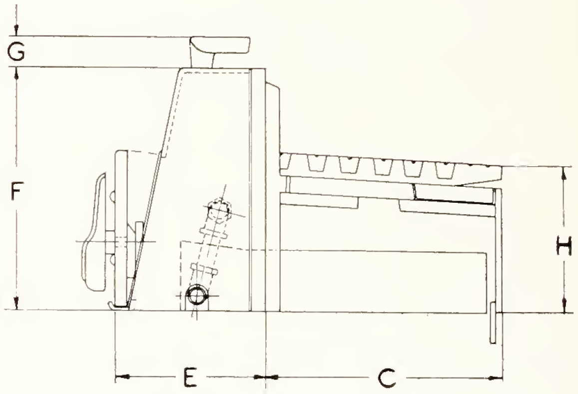
COKE SIZE RECOMMENDED : Number 2 for Open Fires.

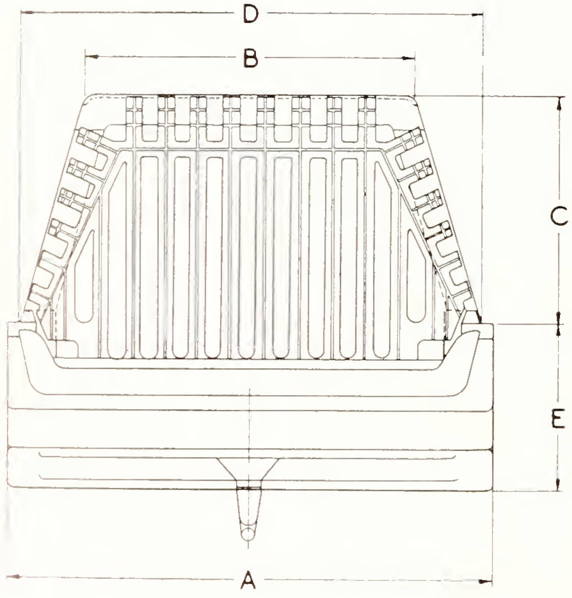
DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

CLACO INSET GRATE

Charles Lathe & Co. Ltd., Moat Foundry, Tipton, Staffs.







SPECIAL FEATURES.—Adjustable bottom grate frame is fixed to the hearth and allows for slight variation in size of fireback. The grate is of the sealed ashpit type. Combustion is controlled by adjustment of the ashpit coverplate ; a specially shaped cam gives an infinitely variable damper opening. The side members of the grate frame deflect ash to the ashpan.

IGNITION.—By means of ¼″ luminous gas burner, which can be connected either side and may be concealed.

FINISHES.—Coloured vitreous enamel with aluminized deepening bar.

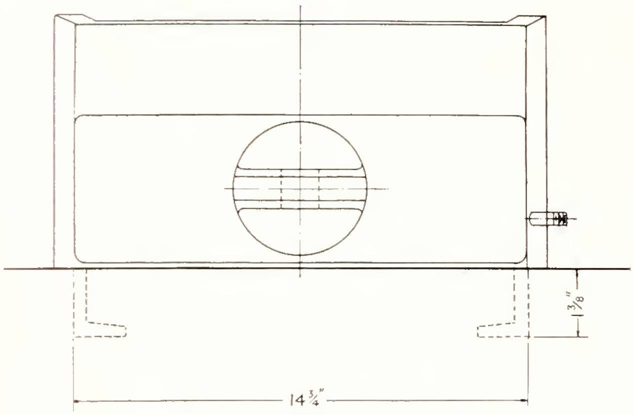
COKE SIZE RECOMMENDED : Number 2 for Open Fires.

SIZES AND DIMENSIONS

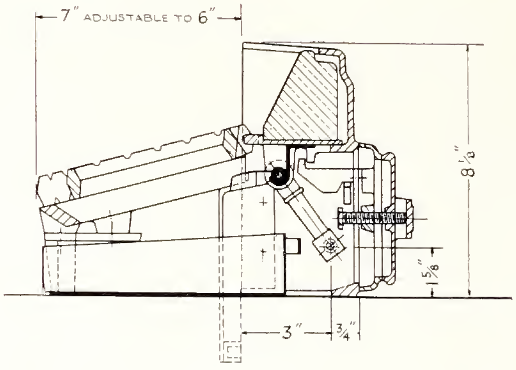
Size of Fire	*A*	*B*		*C*		*D*	*E*	*F*	*G*	*H*
		Min.	*Max.*	*Min.*	*Max.*					
16″	15¾″	9½″	11″	6½″	7½″	15″	5¼″	8″	1″	4¾″

REDFYRE SOLID SMOKELESS FUEL GRATE

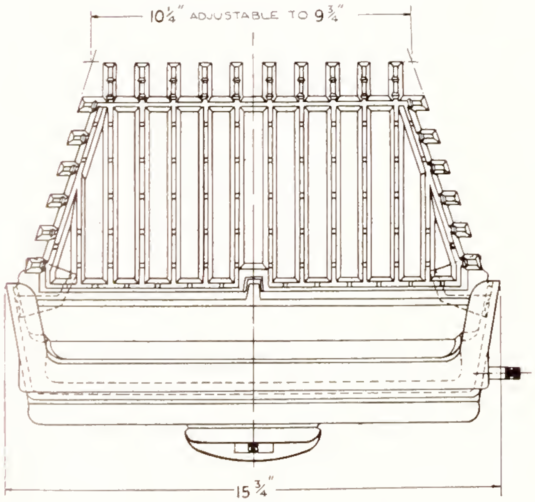
Newton Chambers & Co. Ltd., Thorncliffe, near Sheffield.
London Office : Grand Buildings, Trafalgar Square, W.C.2.



ELEVATION



SECTION.



PLAN.

SPECIAL FEATURES.—Adjustable bottom grate frame which allows for slight variation in size of fireback in 16″ openings.

IGNITION is by luminous gas burner with ¼″ gas connection which can be concealed or on either side of fret.

FINISH.—Black or Coloured Vitreous Enamel.

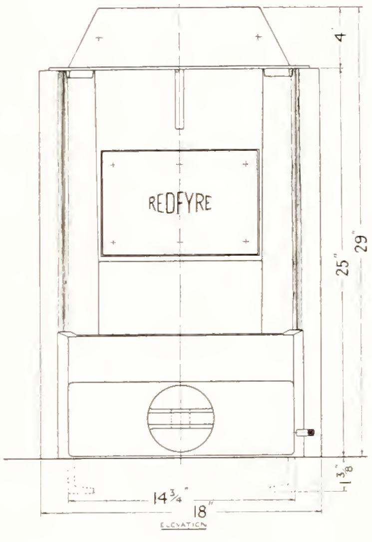
COKE SIZE RECOMMENDED : Number 2 for Open Fires.

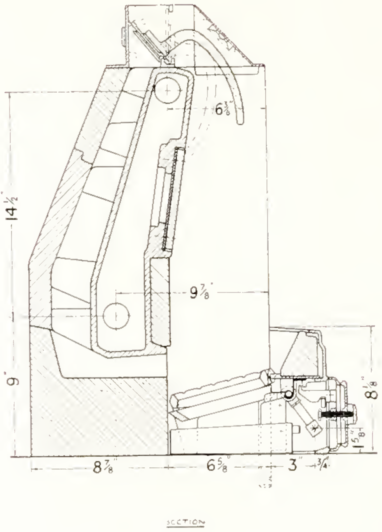
DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

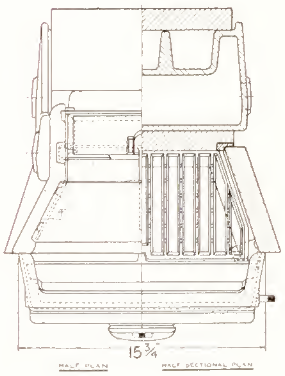
NUMBER 4 REDFYRE BACBOILER

WITH OPEN FIRE

Newton Chambers & Co. Ltd., Thorncliffe, near Sheffield.
London Office : Grand Buildings, Trafalgar Square, W.C.2.







SPECIAL FEATURES.—A complete unit, comprising a 16″ coke grate and cast iron back boiler of special design, with self-contained firebrick flues, capable of heating radiators in addition to domestic hot water supply. Can be fitted to any standard tiled surround.

BOILER.—Cast iron, with two 1¼″ connections on each side. Approx. rating : 12,000 B.Th.U. per hour. Can be supplied "Bower-barffed."

IGNITION is by luminous gas burner ; ¼″ gas connection which can be concealed or on either side of fret.

FINISH.—Black or Coloured Vitreous Enamel.

COKE SIZE RECOMMENDED : Number 2 for Open Fires.

SECTION B

DOMESTIC BOILERS

FOR

HOT WATER SUPPLY

OR

CENTRAL HEATING

HEATING SURFACE: 2 to 5 square feet

DOMESTIC BOILERS
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

SECTION B

DOMESTIC BOILERS FOR HOT WATER SUPPLY OR CENTRAL HEATING

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- Notes on Installation and Servicing

BEESTON BOILER CO. LTD.

- WOF Open Fire Boiler . . . . Ba.1—1948
- New OOF, New AOF, BOF, COF, DOF Open Fire Boilers . . . Ba.2—1948
- TWOF, TOOF, TAOF Open Fire Boilers . . . . Ba.3—1948
- PX, OX, AX Closed Domestic Boilers . . . . Ba.4—1948
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- FOF(EJ) Open Fire Boiler with Enamelled Jacket . . . . . Ba.6—1948

INTER-OVEN STOVE CO. LTD.

- 20T Nudeal Wrought Steel Boiler Bb.1

CRANE LTD.

- Ipswich Number 00 Open Fire Boiler . . . . Bc.1—1948
- Ipswich Number 01 Open Fire Boiler . . . . Bc.2—1948
- Ipswich Numbers 1 and 2 Open Fire Boilers . . . . . Bc.3—1948
- Ipswich Number 3 Open Fire Boiler . . . . Bc.4—1948

HARTLEY & SUGDEN LTD.

- White Rose Independent Domestic Boilers Be.2

IDEAL BOILERS & RADIATORS LTD.

- Ideal Number O-DA Open Fire Boiler . . . . Bf.1—1948
- Ideal Number LOO Open Fire Boiler . . . . Bf.2—1948
- Ideal Numbers L1 and L2 Open Fire Boilers . . . . . Bf.3—1948
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SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
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LUMBYS LTD.

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Royal Beaconstove Number 01, 02, 03 Cast Iron Boilers . . . Bg.2
Royal Beaconstove Number 51, 52, 53 Mild Steel Boilers . . . Bg.3

NAUTILUS FIRE CO. LTD.

Nautilus Numbers 2 and 3 Mild Steel Boilers . . . . . . Bh.1—1948
Nautilus Number 0 Mild Steel Boiler . . . . Bh.2—1948

ROBERT TAYLOR & CO. LTD.

Tayco Numbers 21M and 25M Boilers . . . . Bj.1—1948
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WILSONS & MATHIESONS LTD.

Carlton Gas and Coke Range Bk.1

YATES, HAYWOOD & CO.

Wizard Domestic Boiler Bl.1

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

SECTION B

DOMESTIC BOILERS FOR HOT WATER SUPPLY OR CENTRAL HEATING

I. INTRODUCTION

This section deals mainly with boilers having heating surfaces between 2 and 5 sq. ft., but in certain cases larger sizes have been included where they complete a series of which the majority comes within the above range. Also included are a number of heating boilers of a size suitable for moderate sized dwellings. The heat outputs from these boilers can, of course, vary widely according to the method of operation and at one time manufacturers used different criteria on which to base the rating. The anomalies have now been resolved and the ratings given in this section are all calculated on a common basis.

II. TYPES OF DOMESTIC BOILERS

There are three main types of domestic hot water boilers which differ from each other in the disposition of the heating surface. The open fire type, which has been installed in the largest numbers, has a horse-shoe or rectangular shaped boiler. Front fire-bars are provided which are normally covered by the front door and the possibility of being able to see the fire by lowering the door is largely responsible for the popularity of this type of boiler. The second type of domestic boiler is known as the closed boiler, since the fire is completely surrounded by the heating surface although generally a small door is provided through which the fire may be cleaned. This cleaning door is unnecessary on closed boilers fitted with a shaking and a dumping grate. Lastly, there is the heating boiler so called because it is designed specially for use with hot water radiators although in small domestic installations it also provides the domestic hot water supply through an indirect storage cylinder. Heating boilers are provided with a secondary heating surface ; the waterways are narrower than on the other types, thus giving a more rapid circulation of water through the boiler. Both of these design features, together with the lower rating of the heating surface, combine to give the heating boiler the highest thermal efficiency.

III. BASIS OF APPROVAL

(*a*) **Dimensional and Constructional Standards**

All boilers included in this section conform to British Standard 758 : 1945, Small Domestic Hot Water Supply Boilers for Solid Fuel, although some of the older types have not yet been altered to comply with the requirement that the fuel capacity should not be less than 0·6 cu. ft. This minimum fuel capacity is now obligatory on all new boilers, but until it is possible to change existing models the minimum capacity may be retained at 0·49 cu. ft. This increase in fuel capacity, together with the more stringent requirements for combustion air control, have effected a considerable advance in performance. Thus, whereas with the older type boiler of 0·49 cu. ft. capacity overnight banking could only be obtained with selected quality cokes under favourable weather conditions, there is no difficulty with the larger fuel capacity boiler. In fact, banking periods of over 16 hours are now possible.

For full details of the dimensional requirements for domestic hot water supply boilers reference should be made to B.S. 758: 1945, and attention is directed to the following points in addition to the minimum fuel capacity of 0·6 cu. ft. noted above.

i. Dampers and Doors

The following three requirements ensure effective control of combustion :—

(*a*) ***Air Control Damper.*** The boiler shall be provided with a well-fitting finely adjustable air inlet below the grate. In order to control the combustion of the fuel in the boiler at slow rates of burning as, for example, in overnight banking, provision shall be made so that the damper can be easily set to give air openings of 0·5 sq. in. and under. The practice of combining the ashpit door or cover with the ashpan is not recommended.

Doors or dampers used for closing the opening in front of the ashpit shall have a clearance of not more than $\frac{1}{32}$nd in. at any point and the total clearance shall not exceed 0·5 sq. in.

(*b*) ***Doors at Front and above Grate Level.*** The clearance between these doors and the surface against which they close shall be not more than $\frac{1}{16}$ in. at any one point.

(*c*) ***Flue or Chimney Damper.*** The flue or chimney damper may be of either the sliding or butterfly type and clearly marked to indicate the position. Dampers of either type shall be so shaped that, when fully closed, the free area to permit the passage of flue gases shall be between the limits of 9 per cent. and 12 per cent. of the area of the flue in the plane of the damper.

ii. Fire Grates

The following three requirements ensure that the fuel bed can be cleared of ash and that there is sufficient free air space on the grate to avoid the rapid local combustion which favours clinker formation. So that the fuel bed may be readily and effectively cleared of ash without unduly disturbing the fire zone, the National Federation strongly recommends the use of a shaking, rocking or rotating grate.

(*a*) The grate area per sq. ft. of heating surface shall be not less than 25 sq. in. for the open type boilers and 20 sq. in. for closed boilers.

(*b*) The area of free air space on the grate shall be not less than that given by the formula :—

Free air space in sq. in. $= 6 + (6 \times$ heating surface in sq. ft.).

The area of free air space for shaking, rocking or rotating grates shall be not less than 65 per cent. of the above values.

(*c*) The width of air space of the fire bars for boilers of 2 to 5 sq. ft. heating surface shall be not less than $\frac{1}{2}$ in.

iii. Combustion at Rated Output

All boilers in this list have combustion rates at rated output of not more than 10 lb. and not less than 6 lb. per sq. ft. of grate area per hour. 8 lb. per sq. ft. of grate area per hour is a good design figure for coke. This rate avoids clinker formation and yet is sufficiently high above the minimum rate of combustion of about 0·6 lb. per hour to give flexibility in boiler output.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

iv. **Rating**

The ratings shall be as follows :—

Domestic Boilers for	*Open Boilers* *i.e., no waterway across front.* *B.Th.U. per sq. ft. of Heating Surface per hour.*	*Closed Boilers* *i.e., with waterway across front.* *B.Th.U. per sq. ft. of Heating Surface per hour.*
Hot Water Supply : Normal domestic rating (charging interval not less than every 2 hours).	10,000	11,000
Hot Water Supply : Continuous rating (charging interval not less than every 4 hours).	6,000	6,000
Central Heating : (charging interval not less than every 6 hours).	4,400	4,400

v. **Gas Poker Hole.**

A hole shall be provided which gives access to the fuel bed at grate level, so that a gas poker may be inserted to ignite the coke.

(*b*) **Performance Standards**

i. **Banking**

The fire shall remain alight unattended for a period of not less than 10 hours when burning the recommended size of coke.

ii. **Water Heating Efficiency**

When tested at the rated heat output and in accordance with the method prescribed in B.S. 758 : 1945, the water heating efficiency shall be not less than :—

(*a*) 45 per cent. for an open type boiler.

(*b*) 60 per cent. for a closed type boiler.

(*c*) 70 per cent. for a heating boiler.

iii. **Mechanical Construction**

The boiler construction shall be capable of withstanding the overload test prescribed in B.S. 758 : 1945.

IV. INSTALLATION

The boiler should be set on a firm base and care taken to ensure that in its final position no air can leak into the ashpit from underneath. Boiler cement generally supplied with the boiler should be used to seal any unmade joints such as those between boiler and base plate and boiler and top plate. Damaged or badly fitting doors should be reported to the manufacturers and replaced. The products of combustion should be led into the chimney proper through (preferably) a cast iron fluepipe. The diameter of this fluepipe should not be less than that of the flue outlet of the boiler.

The point of entry of the fluepipe into the chimney should be properly sealed and the end should not project beyond the inner side of the chimney wall. In the case of a conversion utilising a chimney formerly serving a kitchen range or similar appliance, the fluepipe should be carried up beyond the " gather " into the chimney proper. A 9 × 9 in. brick chimney

SMALL CENTRAL HEATING AND HOT WATER BOILERS
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or a 6 in. diameter flue will give sufficient draught to operate the boiler if the height is not less than 15 ft. Condensation in brick chimneys has been known to cause staining and the usual remedy is to allow diluent air to enter the flue through a break draught.

V. HOT WATER STORAGE VESSEL

The water in the storage vessel may be heated either directly or indirectly. Most domestic hot water systems are of the direct type and since all the water used at the taps passes through the boiler, care must be taken to descale the boiler periodically. In hard water districts descaling may be necessary once a year. The building up of scale in the boiler gradually lowers its efficiency and may, if allowed to accumulate, cause fracture of the waterway. These difficulties are eliminated in the indirect hot water system since the boiler water, circulated through a coil or annulus in the storage vessel, is simply used as a heating medium and is thus separated from the water supplied to the taps. Indirect hot water systems are thus suitable for waters of all degrees of hardness and acidity, and are, therefore, preferable to the direct system. The indirect hot water system should always be employed with heating boilers and in installations including radiators. A small radiator or a towel rail is frequently included in a direct hot water system.

VI. LAGGING

The heat loss from an unlagged cylinder and flow and return pipes of a typical domestic hot water system is about 1,000 B.Th.U. per hour.

Lagging will prevent the dissipation of most of this heat, with a corresponding saving in fuel cost. Other advantages of lagging are :—

(1) Hotter water at the tap.
(2) More rapid heating up from cold.
(3) More constant water temperatures.
(4) The ability to employ more usefully any surplus heat in the water by dissipation through radiators in that part of the house where it is most required. A lagged storage cylinder will generally give off sufficient heat in a linen cupboard for airing purposes.

B.S. 1304 : 1946 covers " Ready-to-fit " Thermal Insulating Materials.

VII. THERMOSTATS AND SAFETY VALVES

Thermostats, although advantageous, are seldom fitted to the minimum size of boiler. A simple, cheap thermostat has recently been devised for small boilers and a range of direct acting thermostats is available for boilers of over 25,000 B.Th.U. per hour rating. It is largely because of first cost that thermostats are not more widely adopted.

Safety valves are not essential, but a strong recommendation is made in B.S. 758: 1945 that a suitable relief valve should be fitted.

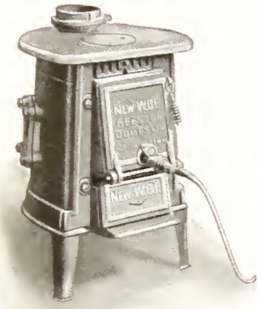
VIII. LIGHTING INSTRUCTIONS AND RATE OF HEATING UP FROM COLD

B.S. 758: 1945 states that a gas poker hole in the fire-door must be provided and recommends a diameter of 1$\frac{1}{8}$ in. A fuel bed of about 8 in. for boiler nuts or 10 in. for broken coke should be used when first lighting. Coke can be lighted with an approved gas poker in about 20 minutes and a good fire obtained in about 40 minutes. With coke of average quality sufficient hot water to give a bath of 25 gallons at 105° F. with inlet feed at 55° F. will be obtained in approximately 90 minutes. In lighting, the gas rate should not be so high that gas flames appear on top of the coke, although they may do so for a short time after lighting until the coke becomes heated.

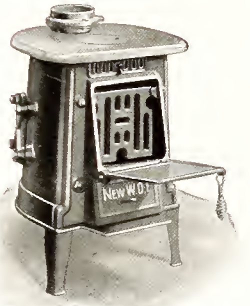
THE NEW WOF BEESTON OPEN FIRE DOMESTIC BOILER

FOR HOT WATER SUPPLY

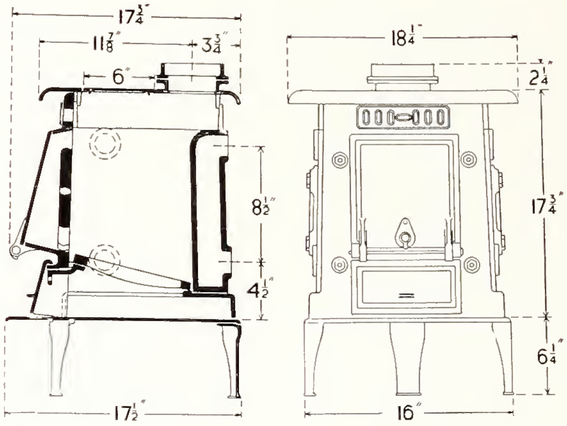
The Beeston Boiler Co. Ltd., Beeston, Nr. Nottm.



Boiler closed and with gas poker.



Open Fire.



RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size	Heating Surface	*B. Th.U. per Hour*		Fuel Capacity	Grate Area	Water Content	*Gallons per Hour Normal Domestic Rating*	
	sq. ft.	*Continuous Rating*	*Normal Domestic Rating*	*cu. ft.*	*sq. ft.*	*gall.*	50°–110° *F.*	50°–150° *F.*
WOF	2·0	12,000	20,000	0·52	0·49	2¼	33	20

Two 6″ × 4″ mudholes are provided.

One 1¼″ Flow and 1¼″ Return tappings are supplied at back, unless otherwise ordered. Tappings for flow and return can be supplied at right- and left-hand sides if ordered.

½″ plugged hole for draw-off. Draw-off cock supplied to order.

Smoke outlet at top of boiler is a socket 1″ deep to take spigot end of 4″ smoke pipe. Slide pattern damper is provided.

Smoke adapter 4″ × 6″ to make 6″ flue connection can be supplied, if required, plain or enamelled to match boiler.

Smoke-tight collar for connecting flue pipe to blanking-off plate can be supplied to order.

SHAKING GRATE.—To shake the grate, remove ash door, insert poker in lug and move from side to side.

Removable ash pan and stoking tools supplied to order.

Gas poker with 4 ft. flexible metallic tube, supplied if ordered.

Hole for inserting gas poker is supplied on front door of boiler.

¾″ deadweight or spring type safety valve supplied to order.

Boiler supplied with tray, with or without feet as required.

BOILER FINISHES.—Grey or Brown mottled enamel as standard, but other colours can be supplied to special order.
Top plate can be polished, nickel or chromium plated to order.
" Bower-Barffing " process, recommended for boilers used in soft water districts, is carried out to order.

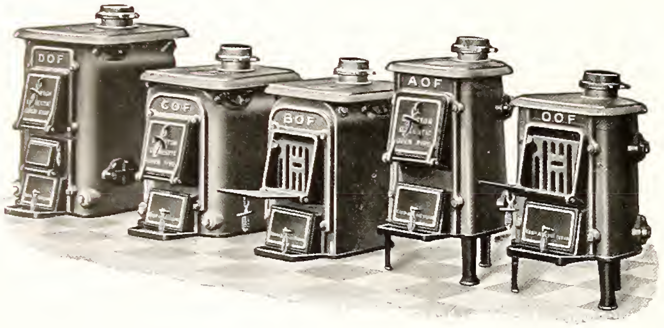
COKE SIZE RECOMMENDED.—Number 3.

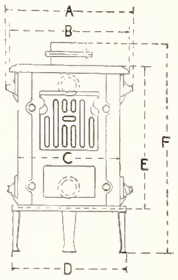
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

BEESTON OPEN FIRE DOMESTIC BOILERS

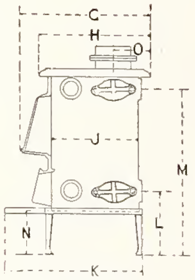
FOR HOT WATER SUPPLY OR CENTRAL HEATING BY HOT WATER

The Beeston Boiler Co. Ltd., Beeston, Nr. Nottm.





END ELEVATION



SIDE ELEVATION

DIMENSIONS IN INCHES

Size Number	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K*	*L*	*M*	*N*	*O*	*Smoke Pipe Diameter*
NEW OOF	17½	18¼	14½	15½	21	29½	18	15⅝	12	19	11⅛	22⅞	6¼	3¾	4
NEW AOF	17½	18¼	14½	15½	24¼	32¾	18	15⅝	12	19	11⅞	26⅛	6¼	3¾	4
BOF	15½	18	13⅛	14½	23	32⅝	21½	18	15¼	21¼	10	26⅞	6¼	6½	4
COF	18	19	17	19	23	32½	25½	22	19½	27	10	26⅝	6¼	8½	4½
DOF	22¾	23¼	19¼	21½	27⅝	37¾	26¾	23¼	20½	27½	10⅝	31⅞	6¼	9	5

RATINGS AND OPENINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	*Heating Surface*	*B.Th.U. per Hour*			*Fuel Capacity*	*Grate Area*	*Water Content*	*Gallons per Hour Normal Domestic Rating*		*Tappings at Back, Number and Size.**	*Mudholes Number and Size*
		Hot Water Supply		*Central Heating Rating*							
	sq. ft.	*Continuous Rating*	*Norm. Domestic Rating*		*cu. ft.*	*sq. ft.*	*gall.*	50°–110°F.	50°–150°F.	*in.*	*in. in.*
NEW OOF	2	12,000	20,000	8,800	0·62	0·49	3	39	23	2–1½	4–3½ × 2½
NEW AOF	2½	15,000	25,000	11,000	0·70	0·49	4	47	28	2–1½	4–3½ × 2½
BOF	3¾	22,500	37,500	16,500	0·78	0·72	4¾	75	45	2–2	4–4½ × 3
COF	5½	33,000	55,000	24,200	1·36	1·25	7	92	55	2–2	6–4½ × 3
DOF	7½	45,000	75,000	33,000	2·00	1·45	13	127	75	2–2	8–4½ × 3

* *Tappings can be supplied top and bottom, right- and left-hand side if ordered.*

Two 1¼″ tapped and plugged holes for cleaning in front of sizes COF and DOF only.

Smoke outlet is a socket 1″ deep (1¼″ for DOF) to take spigot end of smoke pipe.

Smoke adapter, 4″, 4½″ or 5″ × 6″ to make 6″ flue connection, can be supplied to order.

Smoke-tight collar for connecting flue pipe to blanking-off plate can be supplied to order.

SHAKING GRATE.—To shake grate, remove ash door, insert poker in lug and move from side to side.

Removable ash pan, stoking tools and gas poker with 4 ft. flexible metallic tube for lighting, supplied to order.

¾″ deadweight or spring type safety valve and ½″ or ¾″ draw-off cock supplied to order. All boilers supplied with tray, with or without feet, as required.

BOILER FINISHES.—Grey or Brown mottled enamel as standard, but other colours supplied to special order.

Top plate polished, nickel or chromium plated to order.

" Bower-Barffing " process, recommended for boilers used in soft water districts, is carried out to order.

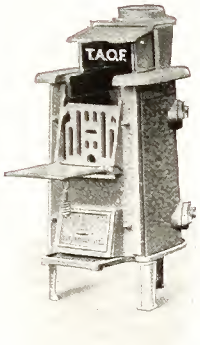
COKE SIZE RECOMMENDED : Number 3 or Number 2 for Boilers Size Numbers NEW OOF, NEW AOF, and BOF.
Number 2 for Boilers Size Numbers COF and DOF.

BEESTON OPEN FIRE DOMESTIC BOILERS

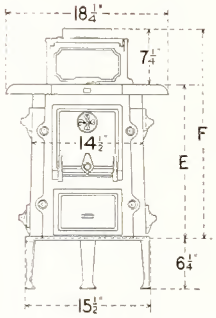
TWOF, TOOF and TAOF

FOR HOT WATER SUPPLY AND CENTRAL HEATING BY HOT WATER

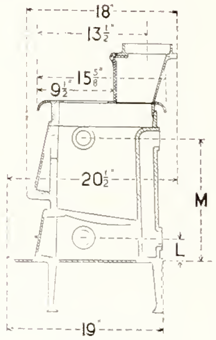
The Beeston Boiler Co. Ltd., Beeston, Nr. Nottm.



PORCELAIN ENAMEL FINISH



END ELEVATION



SIDE ELEVATION

DIMENSIONS IN INCHES

Size Number	*E*	*F*	*L*	*M*	*Smoke Pipe Diameter in.*
TWOF	17¾	25	4½	13	5
TOOF	19¼	26½	2⅝	14⅛	5
TAOF	22½	29½	3½	17½	5

If tray without feet is used, height E and F is increased by 1″. Standard flow and return tappings are at back. Size TWOF, 1¼″ ; TOOF and TAOF, 1½″.
Tappings can be supplied top and bottom right- and left-hand side to order.
MUDHOLES FOR CLEANING.—TWOF, two, 6″ × 4″ ; TOOF and TAOF, four, 3½″ × 2½″.
Smoke pipe adapter, 5″ × 6″ socket and spigot, for making 6″ smoke pipe connection, supplied if required.

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	*Heating Surface*	*B.Th.U. per Hour*			*Fuel Capacity*	*Grate Area*	*Water Content*	*Gallons per Hour Normal Domestic Rating*		*Approx. Weight of Boiler*
		Hot Water Supply		*Central Heating Rating*						
	sq. ft.	*Continuous Rating*	*Normal Domestic Rating*		*cu. ft.*	*sq. ft.*	*gall.*	50°–110° F.	50°–150° F.	*cwt.*
TWOF	2	12,000	20,000	8,800	0·52	0·49	2¼	33	20	1¾
TOOF	2	12,000	20,000	8,800	0·62	0·49	3	33	20	2¼
TAOF	2½	15,000	25,000	11,000	0·70	0·49	4	42	25	2½

SHAKING GRATE.—To shake grate, remove ash door, insert poker in lug and move from side to side.
¾″ deadweight or spring type safety valve and ½″ draw-off cock supplied to order.
Automatic Damper regulator, with special Elbow and ash damper to suit, can be supplied if required.
Gas poker with 4 ft. flexible metallic tubing, removable ash pan and stoking tools supplied to order.
Boilers are supplied with tray, with or without feet, as required.

BOILER FINISHES.—Grey or Brown mottled enamel as standard, or Black finish, but other colours supplied to special order.
Top plate polished, nickel or chromium plated to order.
"Bower-Barffing" process, recommended for boilers to be used in soft water districts, is carried out to order.

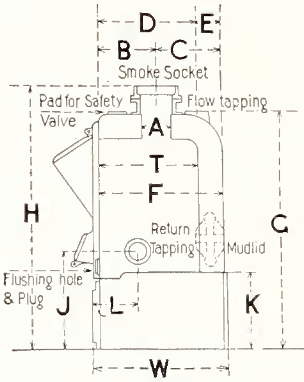
COKE SIZE RECOMMENDED.—Number 3 for Boiler Size Number TWOF.
Number 3 or Number 2 for Boilers Size Numbers TOOF and TAOF.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

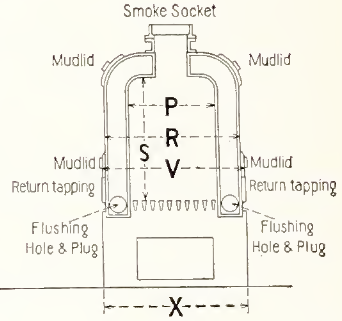
BEESTON CLOSED DOMESTIC BOILERS

FOR HOT WATER SUPPLY OR CENTRAL HEATING BY HOT WATER

The Beeston Boiler Co. Ltd., Beeston, Nr. Nottm.



SIDE ELEVATION



INTERNAL VIEW

DIMENSIONS IN INCHES

Size No.	A	B	C	D	E	F	G	H	J	K	L	P	R	S	T	V	W	X
PX	3¼	$5\frac{13}{16}$	$6\frac{1}{16}$	10¼	1⅝	11⅞	26½	30	11	8	4	8¼	13¼	14¼	9	14¼	14	14¼
OX	$3\frac{13}{16}$	6	7⅞	11¾	2⅛	13⅞	28½	32	$11\frac{11}{16}$	9	4¾	10¼	15¼	16¼	11	16¼	15⅜	16
AX	4	7½	8¾	12⅞	3⅜	16¼	31	34¾	12⅝	10	5⅝	11	17¾	16	12½	18½	17¼	18¾

TAPPINGS AND OPENINGS

Size Number	Standard Tappings		Mudholes Number and Size	Tray Measurements in.*		Flushing Holes and Iron Plugs	Waterway Size	Minimum Size of Tapping Recommended	Fire-door (Top)	Clinker-door (Centre)	Ash-door (Bottom)
	Flows on Top	Returns each Side		From Front to Back	Width		in.	in.	in.	in.	in.
	in.	in.	in. in.			in.					
PX ...	1–1½	1–1½	4–3½ × 2½	19	15½	2–¾	1¾	1¼	7 × 6	6⅞ × 3¼	9¼ × 4⅞
OX ...	1–1½	1–1½	4–4½ × 3	21½	17¼	2–¾	1¾	1¼	6⅞ × 5	6¾ × 3	9⅞ × 5⅛
AX ...	1–2	1–2	4–4½ × 3	23½	20	2–1¼	2½	1½	7 × 5¼	7 × 3	10 × 5

¾″ tappings for safety valve and ½″ for thermometer on top of all boilers.
Smoke outlet is at top, and is a SOCKET to take spigot end of smoke pipe.
* *Tray increases height 1″. Tray with feet increases height 6¼″.*

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Grate Area	Fuel Capacity	Water Capacity	Smoke Pipe Diameter	Composition to Cover Boiler 2″ Thick	Heating Surface	Approx. Weight of Boiler	B.Th.U. per Hour			Gall. per Hour Normal Domestic Rating	
								Hot Water Supply		Central Heating Rating	50°–110°F.	50°–150° F.
								Continuous Rating	Normal Domestic Rating			
	sq. ft.	cu. ft.	gall.	in.	lb.	sq. ft.	cwt.					
PX	0·49	0·61	3¼	4	56	3¼	2¼	19,500	35,750	14,300	60	36
OX	0·75	0·96	4	4½	78	4⅓	3	26,000	47,650	19,000	79	47
AX	0·86	1·25	8	4½	96	5½	4¼	33,000	60,500	24,200	101	60

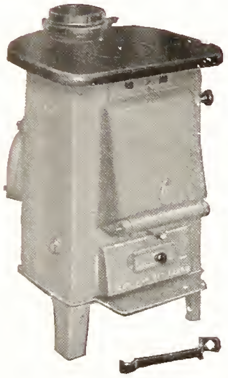
Tray with or without feet, ash pan, stoking tools, ¾″ deadweight or spring type safety valve and two ¾″ or ½″ draw-off cocks supplied to order.
4″ and 4½″ × 6″ smoke pipe adapter, socket and spigot, for making 6″ smoke connection supplied if required.
" Bower-Barffing " process, recommended for boilers used in soft water districts, carried out to order.
COKE SIZE RECOMMENDED : Numbers 3 or 2 for Boiler Size Number PX.
Number 2 for Boiler Size Number OX and AX.

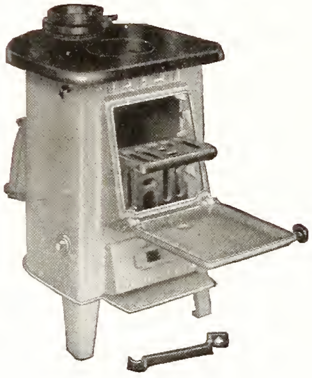
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

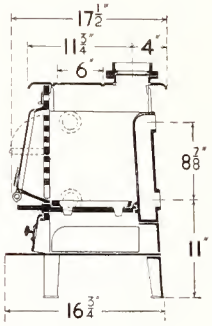
THE FOF BEESTON OPEN FIRE DOMESTIC BOILER

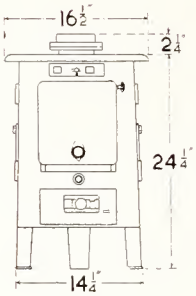
FOR HOT WATER SUPPLY AND CENTRAL HEATING BY HOT WATER

The Beeston Boiler Co. Ltd., Beeston, Nr. Nottm.









RATINGS AND DIMENSIONS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size	Heating Surface sq. ft.	B.Th.U. per Hour			Fuel Capacity cu. ft.	Grate Area sq. ft.	Floor Space Required in.	Water Content gall.	Gallons per Hour Normal Domestic Rating	
		Continuous Rating	*Normal Domestic Rating*	*Central Heating Rating*					50°–110° F.	50°–150° F.
FOF	2·0	12,000	20,000	8,800	0·6	0·57	16¾ × 16½	2	33	20

Two 4" diameter mudholes are provided.

1¼" Flow and Return tappings at back are supplied unless otherwise ordered ; tappings can be supplied at right or left side if ordered specially.

½" plug with hose connection or ½" draw-off cock supplied as required.

Smoke outlet is a socket 1" deep inside to take spigot end of 4" smoke pipe. Slide damper is provided.

ROCKING GRATE.—A tool is supplied to operate the rocking grate. A removable ash pan is supplied. Stoking tools are supplied to order. A hole for inserting gas poker is provided on front door of boiler.

¾" deadweight or spring safety valve is supplied to order.

A 1½" automatic damper regulator and special elbow to suit can be supplied if required.

A tray with or without feet is supplied as required.

BOILER FINISHES.—Grey paint finish, part or all enamelled, either grey mottled or cream and black.

" Bower-Barffing " process, recommended for boilers used in soft water districts, is carried out to order.

COKE SIZE RECOMMENDED.—Number 3.

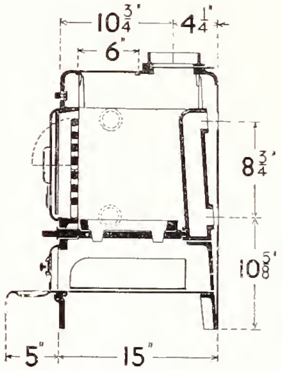
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

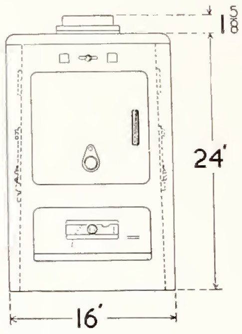
THE FOF (EJ) BEESTON OPEN FIRE DOMESTIC BOILER

WITH ENAMELLED JACKET

FOR HOT WATER SUPPLY AND CENTRAL HEATING BY HOT WATER

The Beeston Boiler Co. Ltd., Beeston, Nr. Nottm.





RATINGS AND DIMENSIONS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size	Heating Surface	*B.Th.U. per hour*			Fuel Capacity	Grate Area	Floor Space Required	Water Content	*Gallons per hour Normal Domestic Rating*	
	sq. ft.	Continuous Rating	Normal Domestic Rating	Central Heating Rating	cu. ft.	sq. ft.	in.	gall.	50°-110° F	50°-150° F
FOF (EJ)	2·0	12,000	20,000	8,800	0·6	0·57	16×20	2	33	20

Two 4″ diameter mudholes are provided.

1¼″ Flow and Return tappings at back are supplied unless otherwise ordered; tappings can be supplied at right or left side if ordered specially.

½″ plug with hose connection or ½″ draw-off cock supplied as required.

Smoke outlet is a socket 1″ deep inside to take spigot end of 4″ smoke pipe. Slide damper is provided.

ROCKING GRATE.—A tool is supplied to operate the rocking grate. A removable ash pan is supplied.

Stoking tools are supplied to order. A hole is provided for inserting gas poker through front door of the boiler.

¾″ deadweight or spring safety valve is supplied to order.

The " Cambrian " Bi-metallic thermostat can be fitted to the boiler inside the jacket at the side of the boiler. It operates a damper controlling air admitted through a hole in the boiler base. The jacket is arranged to suit.

BOILER FINISHES.—Grey mottle enamel, with black enamel top.
Cream enamel with black enamel top.

" Bower-Barffing " process, recommended for boilers used in soft water districts, is carried out to order.

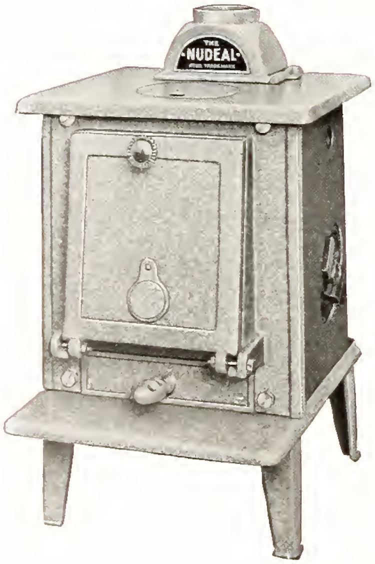
COKE SIZE RECOMMENDED.—Number 3.

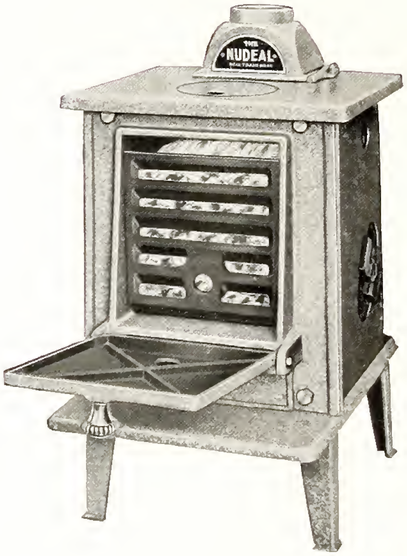
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

THE 20T NUDEAL WROUGHT STEEL DOMESTIC BOILER

FOR HOT WATER SUPPLY

The Canal Boiler Works, North Lambeth, S.E.1.





DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory notes.

Overall Sizes of Hot Plate—In.			*Heating Surface sq. ft.*	*Grate Area sq. ft.*	*Fuel Capacity cu. ft.*	*B.Th.U. per Hour*		*Flue Outlet Diameter in.*	*Recommended Size of Tank gall.*
Width	*Depth*	*Height*				*Continuous Rating*	*Normal Domestic Rating*		
15¼	13¾	21½	2·0	0·51	0·49	12,000	20,000	4	25

Provision is made for inserting gas poker through front of boiler when closed.

BOILER FINISHES.—Fine cast and Blacked ; Mottled Grey vitreous enamel.

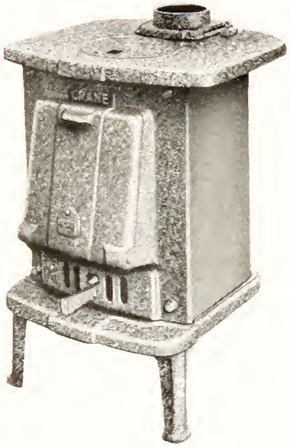
COKE SIZE RECOMMENDED : Number 3.

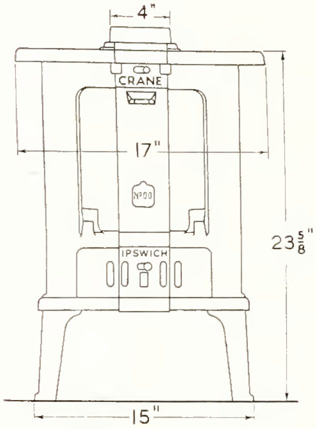
IPSWICH NUMBER OO DOMESTIC BOILER

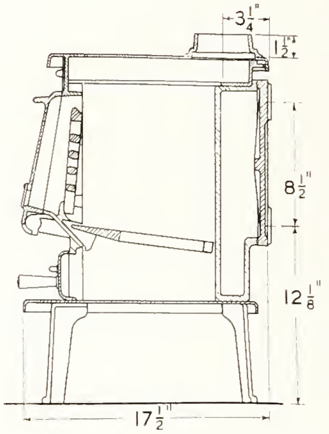
OPEN FIRE

FOR HOT WATER SUPPLY

Crane Ltd., 45, Leman Street, E.1







DIMENSIONS

Size Number	Height to Hotplate in.	Size of Hotplate in.	Overall Projection Back to Front in.	Height to Centre of Tapping—in.		Size of Tappings in.*	Smoke Pipe Size in.
				Flow	Return		
00	23$\frac{1}{2}$	17 × 15	17$\frac{1}{2}$	20$\frac{5}{8}$	12$\frac{1}{8}$	1$\frac{1}{4}$	4

* *Tappings.—Two 1$\frac{1}{4}$" tappings at back are standard, or, alternatively, four 1$\frac{1}{4}$" tappings (two each side) can be supplied to order. Two $\frac{1}{2}$" screwed tappings for draw-off cock.*

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Heating Surface sq. ft.	B.Th.U. per Hour		Fuel Capacity cu. ft.	Grate Area sq. ft.	Gallons per Hour—Normal Domestic Rating		
		Continuous Rating	Normal Domestic Rating			50°–110° F.	50°–130° F.	50°–150° F.
00	2·00	12,000	20,000	0·50	0·49	33	25	20

Boiler is supplied with base and feet as standard. Stoking tools and $\frac{1}{2}$" draw-off cock supplied unless otherwise ordered. Boiler delivered assembled and ready for fixing.

BOILER FINISHES.—All Black (fine cast); Grey or Green mottled enamel (firepot painted aluminium).

COKE SIZE RECOMMENDED.—Number 3.

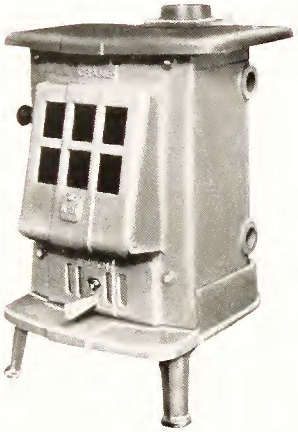
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

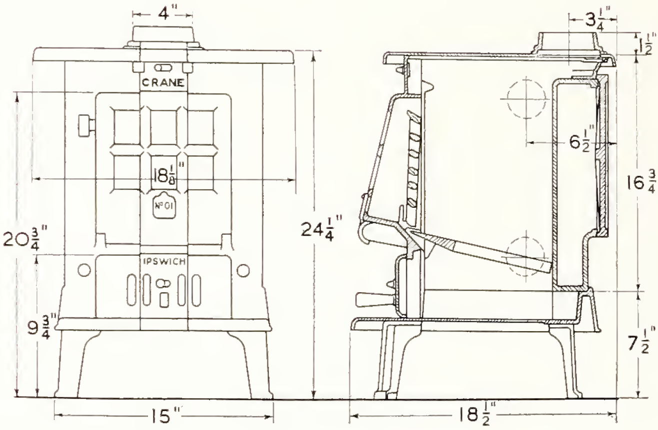
IPSWICH NUMBER 01 DOMESTIC BOILER

OPEN FIRE

FOR HOT WATER SUPPLY

Crane Ltd., 45, Leman Street, E.1





SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

DIMENSIONS

Size Number	*Height to Hotplate* *in.*	*Size of Hotplate* *in.*	*Overall Projection Back to Front* *in.*	*Height to Centre of Tappings*		*Tappings at Side* *Number and Size*	*Smoke Pipe Size* *in.*
				Flow *in.*	*Return* *in.*		
01	24¼	18⅛ × 16	18½	20¾	9¾	in. 4–1¼	4

Two ½″ screwed tappings for draw-off cock are included.

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	*Heating Surface* *sq. ft.*	*B.Th.U. per Hour*		*Fuel Capacity* *cu. ft.*	*Grate Area* *sq. ft.*	*Gallons per Hour—Normal Domestic Rating*		
		Continuous Rating	*Normal Domestic Rating*			50°–110° F.	50°–130° F.	50°–150° F.
01	2·25	13,500	22,500	0·55	0·49	38	28	23

Boiler is supplied with base, feet and ash pan, and is delivered assembled ready for fixing. Stoking tools and ½″ draw-off cock supplied unless otherwise ordered.

BOILER FINISHES.—Black with polished top ; Grey mottled enamel (firepot painted aluminium) is standard enamel finish, but green mottled supplied if required ; Cream enamel finish with black enamel hotplate.

COKE SIZE RECOMMENDED.—Number 3.

IPSWICH DOMESTIC BOILERS NOS. I & 2

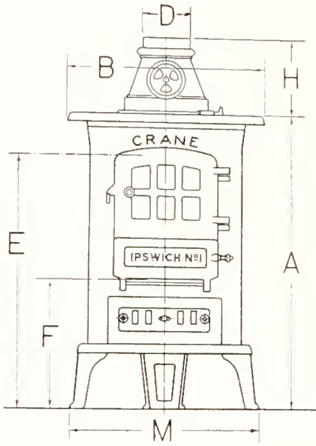
OPEN FIRE

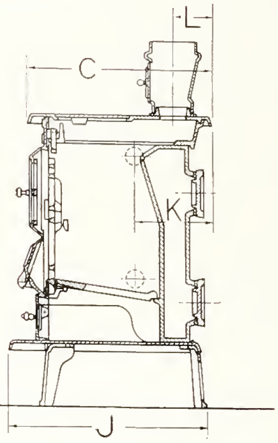
FOR HOT WATER SUPPLY OR CENTRAL HEATING

Crane Ltd., 45, Leman Street, E.1

No. 1

ENAMELLED FINISH, WITH SIDE PLATES





DIMENSIONS

Size Number	Size of Hotplate in.	A in.	B in.	C in.	D in.	E in.	F in.	H in.	J in.	K in.	L in.	M in.	Tappings at Side * Number and Size in.	Smoke Pipe Size in.
1	$18\frac{1}{2} \times 16\frac{1}{2}$	27	$18\frac{1}{4}$	$17\frac{1}{2}$	$4\frac{1}{2}$	$23\frac{1}{4}$	$11\frac{3}{4}$	$7\frac{1}{4}$	$18\frac{3}{4}$	$7\frac{3}{4}$	$3\frac{1}{4}$	17	$4–1\frac{1}{4}$	$4\frac{1}{2}$
2	$20 \times 19\frac{1}{2}$	$29\frac{1}{4}$	20	19	$4\frac{1}{2}$	$25\frac{1}{4}$	$9\frac{1}{4}$	$7\frac{1}{4}$	20	$8\frac{1}{2}$	$4\frac{1}{4}$	$18\frac{1}{4}$	$4–1\frac{1}{4}$	$4\frac{1}{2}$

* $1\frac{1}{2}$″ *tappings can be supplied to order.*

Two $\frac{1}{2}$″ tappings for draw-off cock are included.

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Heating Surface sq. ft.	Hot Water Supply B.Th.U. per Hour		Central Heating Rating B.Th.U. per Hour	Fuel Capacity cu. ft.	Grate Area sq. ft.	Gallons per Hour—Normal Domestic Rating		
		Continuous Rating	Normal Domestic Rating				50°–110° F.	50°–130° F.	50°–150° F.
1	2·8	16,800	28,000	12,300	0·65	0·56	47	35	28
2	4·0	24,000	40,000	18,000	0·95	0·69	66	50	40

Boilers are delivered assembled in readiness for fixing.

Stoking tools and $\frac{1}{2}$″ draw-off cock are supplied, unless otherwise ordered.

The No. 1 Ipswich Boiler is suitable for up to 35-gallon hot water storage or 30-gallon storage and radiators up to 30 sq. ft., and the No. 2 is suitable for 40-gallon storage or 35-gallon and up to about 35 sq. ft. of radiation.

NOTE.—Radiators can only be added if the water is neither corrosive to cast iron, nor very hard. The hot water storage cylinder or tank should also be lagged.

BOILER FINISHES.—Black finish with polished hotplate, or dull nickel-plated hotplate. Vitreous enamelled—mottled Grey as standard, but other colours to order; or Cream enamel with Black enamel hotplate.

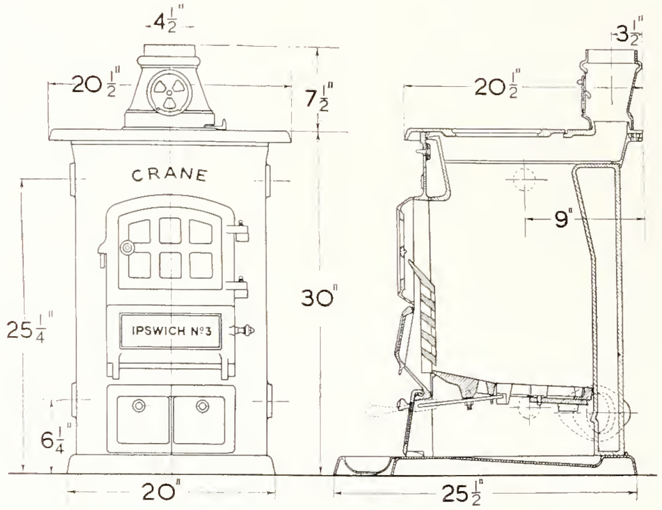
COKE SIZE RECOMMENDED: Numbers 3 or 2 for Boiler Size Number 1.
Number 2 for Boiler Size Number 2.

IPSWICH NUMBER 3 DOMESTIC BOILER

OPEN FIRE

FOR HOT WATER SUPPLY OR CENTRAL HEATING BY HOT WATER

Crane Ltd., 45, Leman Street, E.1



DIMENSIONS

Size Number	Height to Hotplate in.	Size of Hotplate in.	Overall Projection Back to Front in.	Height to Centre of Tappings		Flow and Return Tappings at Sides Number and Size	Smoke Pipe Size in.
				Flow in.	Return in.		
3	30	20½ × 20½	25½	25¼	6¼	in. 4–1½	4½

One ½" tapping is provided in mud door for draw-off cock.

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Heating Surface sq. ft.	B.Th.U. per Hour			Fuel Capacity cu. ft.	Grate Area sq. ft.	Gallons per Hour—Normal Domestic Rating		
		Hot Water Supply		Central Heating Rating			50°–110° F.	50°–130° F.	50°–150° F.
		Continuous Rating	Normal Domestic Rating						
3	5·00	30,000	50,000	22,000	1·35	0·76	84	63	50

The boiler is delivered assembled with base in readiness for fixing. A shaking grate is supplied as standard.
Stoking tools and ½" draw-off cock are supplied with the boiler unless otherwise instructed. The boiler is suitable for up to 50 gallons hot water storage, or 40 gallons storage and radiators up to 40 sq. ft.

NOTE.—Radiators can only be added if the water is neither corrosive to cast iron, nor very hard. The hot water storage cylinder or tank should also be lagged.

FINISHES.—Black finish with polished or nickel-plated top ; Grey or Green mottled enamel throughout, or with nickel-plated top (firepot painted aluminium). Side plates enamelled to match boiler can be supplied. Cream enamel finish with Black enamelled hotplate. The firepot can be supplied finished by the Bower-Barffing process, which is recommended for use in soft water districts.

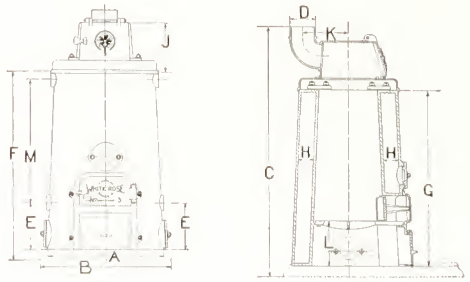
COKE SIZE RECOMMENDED : Number 2.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

THE WHITE ROSE CAST IRON INDEPENDENT DOMESTIC BOILERS

FOR HOT WATER SUPPLY OR CENTRAL HEATING BY HOT WATER

Hartley & Sugden Ltd., Halifax.
London Office : 357, Euston Road, N.W.1.



DIMENSIONS

Size Number	A in.	B in.	C in.	D in.	E in.	F in.	G in.	H in.	J in.	K in.	L in.	M in.	Flow and Return Tappings
CD0*	15	17¾	21¼	4	2¼	20	17	2	—	3½	4½	13½	1¼
CD1	19	22	32¾	4⅝	7¼	24¼	23	2⅞	5½	7⅝	7	14¼	1½
CD2	19	22	40¾	4⅝	7¼	32¼	31	2⅞	5½	7⅝	7	22¼	1½
CD3	22¾	25¾	46¾	5	9	36¼	35	3	7¾	9	9	24	2

All sizes have four screwed bosses (two on each side), also cleaning openings, four 2″ diameter on top ; two 3½″ diameter at bottom ; one 3½″ diameter centre front, except CD0S which is without cleaning facilities. Flow-pipe connections can be through top if desired, except on CD0.

Provision is made for access to all parts of waterways.

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Heating Surface above Grate Level sq. ft.	Water Content gall.	Grate Area sq. ft.	Fuel Capacity cu. ft.	Hot Water Supply				Central Heating Rating B.Th.U. per Hour
					B.Th.U. per Hour		Gall. per Hour		
					Continuous Rating	Normal Domestic Rating	Normal Domestic Rating		
							50°–100° F.	50°–150° F.	
CD0*	3·0	3·8	0·47	0·51	18,000	30,000	60	30	15,000
CD1	4·6	9·0	0·55	0·8	27,600	50,000	100	50	19,600
CD2	6·4	12·5	0·55	1·2	38,500	70,000	140	70	28,500
CD3	9·1	17·5	1·0	2·0	54,600	100,000	200	100	35,200

* *CD0S is for soft water and is without cleaning facilities. CD0H is provided with cleaning facilities for hard water.*

Stoking tools and ½″ draw-off cock supplied unless otherwise ordered.

"Bower-Barffing" process, recommended for boilers used in soft water districts, is carried out to order.

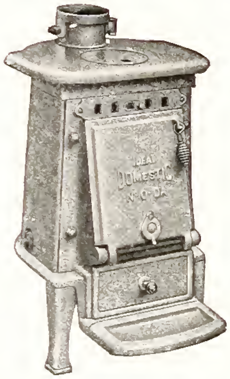
BOILER FINISHES.—Black, but size CD0 has polished flat top.

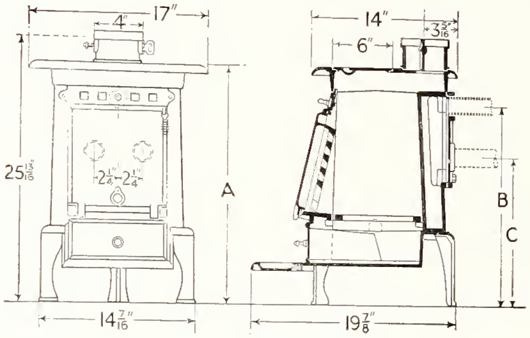
COKE SIZE RECOMMENDED : Number 3 for Boilers Size Numbers CD0, CD1 and CD2
Number 2 for Boiler Size Number CD3.

IDEAL DOMESTIC BOILER NUMBER O-DA

FOR HOT WATER SUPPLY

Ideal Boilers and Radiators Ltd., Hull
London Office : Ideal House, Gt. Marlborough Street, W.1





Smoke Outlet suitable for spigot end of 4-in. cast-iron smokepipe.

DIMENSIONS

Size Number	Height to Top Plate A in.	Height to Centre of Flow B in.	Height to Centre of Return C in.	Number and Size of		
				Tappings in Clean-out Cover at Back		Clean-out Opening at Back
				Flow Central	Return R.H. or L.H.	
				in.	in.	in.
O-DA	$23\frac{13}{16}$	$20\frac{3}{8}$	$15\frac{1}{8}$	$1–1\frac{1}{4}$	$1–1\frac{1}{4}$	$1–8 \times 6\frac{1}{2}$

Smokepipe and elbows should not be less than size of smoke outlet. Where independent cast-iron chimney is used, 6″ is minimum size.

$4\frac{1}{2}$″ × 6″ adapter for making 6″ flue connection can be supplied if boiler ordered with $4\frac{1}{2}$″ smoke outlet.

Where smokepipe will pass through blanking-off plate at base of chimney flue, a cast-iron collar can be supplied for making tight joint.

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Heating Surface sq. ft.	B.Th.U. per Hour		Fuel Capacity cu. ft.	Grate Area sq. ft.	Gallons per Hour Normal Domestic Rating	
		Normal Domestic Rating	Continuous Rating			40°–120° F.	40°–140° F.
O-DA	2·0	20,000	12,000	0·5	0·51	25	20

Stoking tools and $\frac{1}{2}$″ draw-off cock supplied unless otherwise ordered.

Rustless boiler (Bower-barffed) can be supplied if ordered.

BOILER FINISHES.—Grey mottled vitreous enamel (boiler body painted Grey)
Plain Black finish (not enamelled).

COKE SIZE RECOMMENDED : Number 3.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

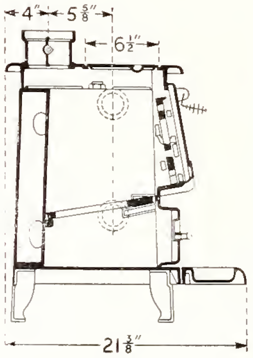
IDEAL DOMESTIC BOILER NUMBER LOO

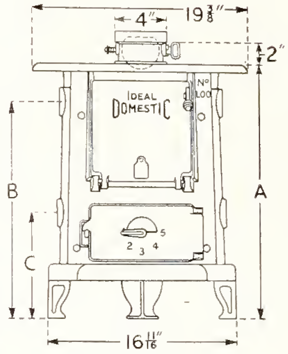
FOR HOT WATER SUPPLY OR CENTRAL HEATING BY HOT WATER

Brit. Regd. Design No. 842457

Ideal Boilers and Radiators Ltd., Hull

London Office : Ideal House, Gt. Marlborough Street, W.I





Smoke Outlet suitable for spigot end of 4-in. cast-iron smokepipe

DIMENSIONS

Size Number	*Height to Top Plate	*Height to Centre of Flow	*Height to centre of Return	Number and Size of		
				Flow and Return Tappings	Clean-out Openings	
	A	B	C		Upper	Lower
	in.	in.	in.	in.	in.	in.
LOO	$22\frac{1}{2}$	$19\frac{3}{16}$	$9\frac{3}{8}$	$2 - 1\frac{1}{2}$	$2 - 2$	$2 - 2\frac{1}{2}$

* *Includes baseplate* $4\frac{3}{4}''$.

Smokepipe and elbows should not be less than size of smoke outlet. Where independent cast-iron chimney is used, 6″ is minimum size.

$4\frac{1}{2}'' \times 6''$ adapter for making 6″ flue connection can be supplied if boiler ordered with $4\frac{1}{2}''$ smoke outlet.

Where smokepipe will pass through blanking-off plate at base of chimney flue, a cast-iron collar can be supplied for making tight joint.

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Heating Surface sq. ft.	B.Th.U. per Hour			Fuel Capacity cu. ft.	Grate Area sq. ft.	Gallons per Hour Normal Domestic Rating	
		Hot Water Supply		Central Heating Rating				
		Normal Domestic Rating	Continuous Rating				40°–120° F.	40°–140° F.
LOO	2	20,000	12,000	8,800	0·49	0·54	25	20

Stoking tools and $\frac{1}{2}''$ draw-off cock supplied unless otherwise ordered.

Rustless boiler (Bower-barffed) can be supplied if ordered.

BOILER FINISHES.—Grey mottled vitreous enamel (boiler body painted Grey).
Plain Black finish (not enamelled) with polished top.

COKE SIZE RECOMMENDED : Number 3.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

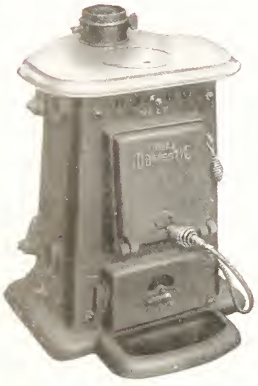
IDEAL DOMESTIC BOILERS NUMBERS L1 & L2

FOR HOT WATER SUPPLY OR CENTRAL HEATING BY HOT WATER

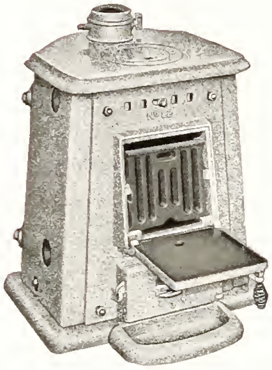
Brit. Regd. Design No. 842457

Ideal Boilers and Radiators Ltd., Hull

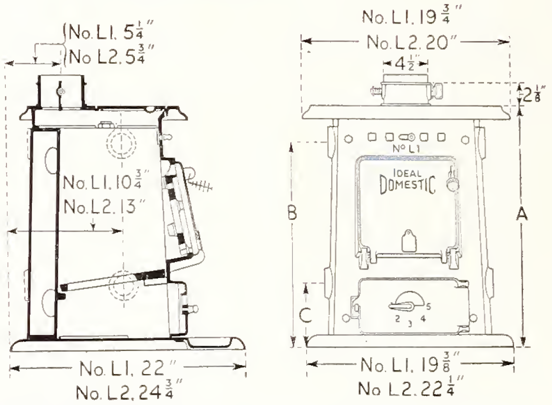
London Office : Ideal House, Gt. Marlborough Street, W.1



No. L1—closed.
Black finish,
with Gas Poker.



No. L2—open.
Grey mottle finish,
with side jackets.



Smoke Outlet suitable for spigot end of 4½-in. cast-iron smokepipe.
Sizes L1 and L2.

DIMENSIONS

Size Number	*Height to Top Plate A in.	*Height to Centre of Flow B in.	Height to Centre of Return C in.	Number and Size of	
				Flow and Return Tappings	Clean-out Openings
				in.	in.
L1	$22\frac{5}{16}$	$18\frac{13}{16}$	$5\frac{13}{16}$	2–1½	4–2½
L2	23¼	19¾	$5\frac{13}{16}$	2–1½	4–3½

* *Includes baseplate : No. L1,* $1\frac{1}{16}$" ; *No. L2,* $1\frac{1}{16}$".

Smokepipe and elbows should not be less than size of smoke outlet. Where independent cast-iron chimney is used 6" is minimum size.
4½" × 6" adapter for making 6" flue connection can be supplied to order.
Where smokepipe will pass through blanking-off plate at base of chimney flue, a cast-iron collar can be supplied for making tight joint.

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Heating Surface sq. ft.	B.Th.U. per Hour			Fuel Capacity	Grate Area	Gallons per Hour Normal Domestic Rating	
		Hot Water Supply		Central Heating Rating				
		Normal Domestic Rating	Continuous Rating		cu. ft.	sq. ft.	40°–120° F.	40°–140° F.
L1	2·5	25,000	15,000	11,250	0·65	0·57	31	25
L2	4·0	40,000	24,000	18,000	0·85	1·0	50	40

Stoking tools and ½" draw-off cock supplied unless otherwise ordered.
Rustless boiler (Bower-barffed) can be supplied if ordered.
BOILER FINISHES.—Grey mottled vitreous enamel (boiler body painted Grey).
Plain Black finish (not enamelled) with polished top.

COKE SIZE RECOMMENDED : Number 3 for Boiler Size Number L1.
Number 3 or Number 2 for Boiler Size Number L2.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

IDEAL DOMESTIC BOILER NUMBER I-XLA

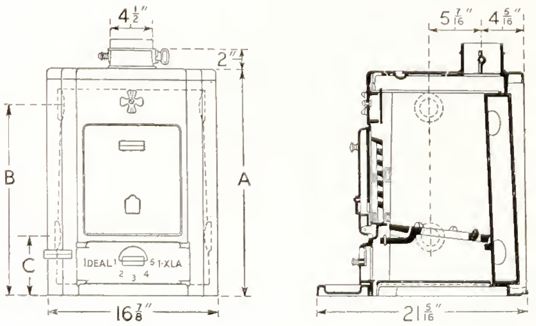
FOR HOT WATER SUPPLY OR CENTRAL HEATING BY HOT WATER

Brit. Regd. Design No. 842458

Ideal Boilers and Radiators Ltd., Hull

London Office : Ideal House, Gt. Marlborough Street, W.I

No. I-XLA.



Smoke outlet suitable for spigot end of 4½-in. cast-iron smokepipe.

DIMENSIONS

Size Number	Height to Top Plate A in.	Height to Centre of Flow B in.	Height to Centre of Return C in.	Number and Size of	
				**Flow and Return Tappings*	*Clean-out Openings*
				in.	in.
I–XLA	22½	18⅞	5⅞	2–1½	4–2½

* *Flow and return tappings on L.H. side will be provided unless otherwise ordered.*

Smokepipe and elbows should not be less than size of smoke outlet. Where independent cast-iron chimney is used 6″ is minimum size.

4½″ × 6″ adapter for making 6″ flue connection can be supplied to order.

Where the smokepipe will pass through blanking-off plate at base of chimney flue, a cast-iron collar can be supplied for making tight joint.

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Heating Surface sq. ft.	B.Th.U. per hour			Fuel Capacity cu. ft.	Grate Area sq. ft.	Gallons per Hour Normal Domestic Rating	
		Hot Water Supply		Central Heating Rating				
		Normal Domestic Rating	Continuous Rating				40°–120° F.	40°–140° F
I–XLA	2·5	25,000	15,000	11,250	0·65	0·56	31	25

Stoking tools and ½″ draw-off cock supplied unless otherwise ordered.

Rustless boiler (Bower-Barffed) can be supplied if ordered.

BOILER FINISHES.—Grey mottled vitreous enamel, with top plate and smoke hood enamelled Black.

COKE SIZE RECOMMENDED : Number 3

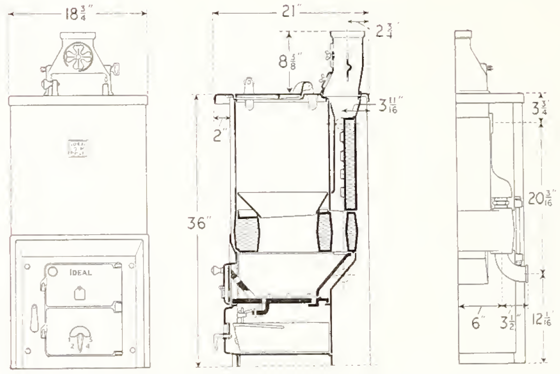
IDEAL NUMBER O-M MAGAZINE BOILERS

(Brit. Patent Nos. 594,162 and 592,644)

FOR CENTRAL HEATING AND INDIRECT HOT WATER SUPPLY

Ideal Boilers and Radiators Ltd., Hull

London Office : Ideal House, Great Marlborough St., W.1



Smoke Outlet suitable for spigot end of 4 in. cast-iron smokepipe.*

The O-M Magazine Boiler is designed to take care of approximately 60 sq. ft. of heating surface, plus a normal amount of piping, and to provide hot water for domestic purposes by the "Indirect" method with a No. OO or No. OOC Ideal Indirect Cylinder (20 gallons). If used solely for heating it will carry a total of 120 sq. ft., including piping. For domestic hot water supply only, a 40-gallon Indirect Cylinder should be used. Under normal running conditions the boiler gives an emission of 3,000 B.T.U. per hour in the room in which it is installed.

The grate is fitted with a shaking device. When ordering, it is necessary to state that the boiler is required to burn coke.

* Smokepipe and elbows should not be less than size of smoke outlet. Where independent cast-iron chimney is used 6″ is minimum size. 4″ × 6″ adapter for making 6″ flue connection can be supplied in plain iron, or vitreous enamelled in black.

A 1¼″ flow and 1½″ return will be provided. They can both be on right-hand or left-hand side, or one on each side. Positions must be stated when ordering.

STANDARD FINISH : Jacket, cream stove enamelled. Cast-iron platework, black vitreous enamelled.

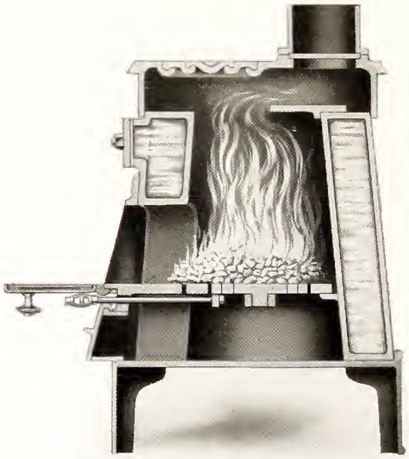
COKE SIZE RECOMMENDED : Number 3 coke boiler nuts of ½″ to 1¼″ size. Coke smaller than ½″ prevents the desired rate of combustion being maintained, whilst coke larger than 1¼″ prevents the proper feed from the magazine. One charge of coke will suffice for 24 hours under normal conditions.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

THE SOLAR DOMESTIC HOT WATER SUPPLY BOILER

Lumbys Ltd., Halifax
London Office : 228, Shaftesbury Avenue, W.C.2

Elevation
Showing Mottled Enamelled Finish



Section

DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	*Height over Hot Plate*	*Depth*	*Diameter*	*Heating Surface*	*Grate Area*	*Fuel Capacity*	*B.Th.U. per Hour*		*Gall. per Hour*		*Flue Diameter*
							Continuous Rating	*Normal Domestic Rating*	*Normal Domestic Rating*		
	**in.*	*in.*	*in.*	*sq. ft.*	*sq. ft.*	*cu. ft.*			50–100° F.	50–130° F.	*in.*
1X	26	18½	16	2·7	0·546	0·77	16,200	30,000	60	38	4½

** This boiler is also supplied as No. 1, which has no flat hot plate, the top being dome shaped with inclined firing door. Overall height excluding flue nozzle is 27″. Supplied Black finish only.*

Fitted with three mudhole covers, and 1½″ flow and return connections at right and left.

A fixed grate is supplied, which is approved.

Stoking tools and ½″ draw-off cock are supplied if required.

Boiler can be " Bower-Barffed " if to be used in soft water district. Copper boiler can be supplied if required.

Supplied Black finish, or Mottled enamel. Top and door can be nickel-plated to order.

COKE SIZE RECOMMENDED : Number 3 or Number 2.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

ROYAL BEACONSTOVE CAST IRON BOILERS

FOR HOT WATER SUPPLY OR CENTRAL HEATING BY HOT WATER WITH OPEN OR CLOSED FIRE

Lumbys Ltd., Halifax
London Office : 228, Shaftesbury Avenue, W.C.2

DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	*Height to Top Plate*	*Heating Surface*	*Hot Water Supply*				*Central Heating Rating*	*Grate Area †*	*Fuel Capacity*	*Diameter Flue Outlet*	*Floor Space* Required*	*Hot Plate **
			B.Th.U. per Hour		*Normal Domestic Rating*							
			Continuous Rating	*Normal Domestic Rating*	*50-100° F.*	*50-130° F.*						
	in.	*sq ft.*			*gall./hour*	*gall./hour*	*B.Th.U. per hour*	*sq. ft.*	*cu. ft.*	*in.*	*In. width depth*	*in. width depth*
01	22	2·0	12,000	20,000	40	26	8,800	0·545	0·5	4	15½ × 16½	19½ × 15½
02	25	2·5	15,000	25,000	50	31	11,000	0·545	0·62	5	15½ × 16½	19½ × 15½
03	31	4·0	24,000	40,000	80	50	17,600	0·545	1·06	5	16½ × 18	21 × 17½

† *Fixed grates should be specified when ordering boiler.*

These boilers have flat tops. If top canopy is required this is supplied in the two larger boilers, when affix C should be added to the boiler number, thus—02C, 03C.

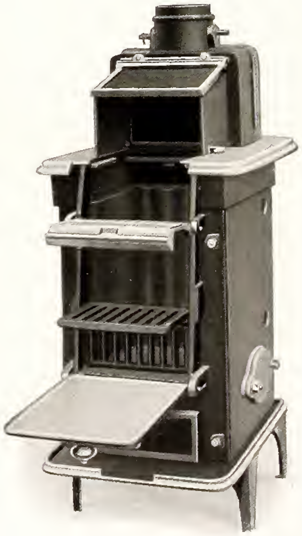
* *See table following for these dimensions—applicable for Size Numbers* 02C *and* 03C.

Size Number	*Floor Space Required in. width depth*	*Width of Hot Plate in.*
02C	17½ × 20	17¾
03C	17½ × 20	17¾

1¼″ Flow and Return at back or side. Three mudhole covers.
Copper boiler can be supplied if required.
" Bower-Barff " rustless process carried out if required ; recommended for boilers to be used in soft water districts.
Supplied Black ; Mottled grey enamel finish to castings only, or whole boiler ; top : Nickel-plated if required.

COKE SIZE RECOMMENDED :
Number 3 for Boiler Size Number 01.
Number 3 or Number 2 for Boiler Size Number 02.
Number 2 for Boiler Size Number 03.

Doors and Canopy closed for Night Use



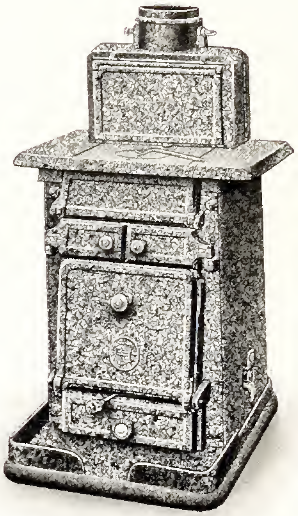
Doors and Canopy open

THE ROYAL BEACONSTOVE MILD STEEL BOILERS

FOR DOMESTIC HOT WATER SUPPLY OR CENTRAL HEATING BY HOT WATER WITH OPEN OR CLOSED FIRE

Lumbys Ltd., Halifax
London Office : 228, Shaftesbury Avenue, W.C.2

Nos. 51C and 52C with open fire



No. 53C with closed fire and Mottled Enamelled Castings

DIMENSIONS AND RATINGS

Three Mudholes in each Boiler

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	*Total Height*	*Floor Space for Base Casting*	*Fuel Capacity*	*Grate Area*	*Size of Storage Cylinder Recommended*	*Heating Surface*	*Hot Water Supply*				*Central Heating Rating B.Th.U. per Hour*
							B.Th.U. per hour		*Gall. per Hour Normal Domestic Rating*		
	in.	*in.* *Width Depth*	*cu. ft.*	*sq. ft.*	*gall.*	*sq. ft.*	*Continuous Rating*	*Normal Domestic Rating*	*50–100° F.*	*50–130° F.*	
51 or 51C	31	17½ × 22	0·95	0·7	40	3·0	18,000	30,000	60	38	13,200
52 or 52C	31	17½ × 22½	1·2	0·84	50	4·0	24,000	40,000	80	50	17,600
53 or 53C	*27½	21 × 26½	1·95	1·10	80	6·5	39,000	65,000	130	81	28,600

* *Size number 53 is not mounted on feet.*

NOTE.—These boilers can be supplied with or without top canopy. If canopy is desired, add affix C to boiler number, thus—51C, 52C, etc.

Size of Pipe Connections : 1¼″ for 51, 51C ; 1½″ for 52, 52C ; 2″ for 53, 53C.
Diameter of Flue : 5″ for 51 and 51C, 52 and 52C. 6″ for 53 and 53C.
For use in soft water districts, boiler can be supplied " Bower-Barffed," if ordered.
¼″ copper-plate boiler can be supplied, if ordered.

FINISHES.—Nickel-plated mouldings and best Black stove enamel castings ; White enamelled tile sides ; Mottled enamel all surfaces.

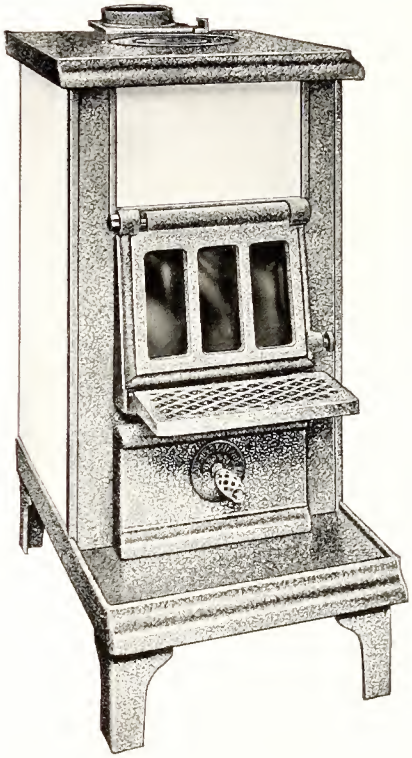
COKE SIZE RECOMMENDED.—Number 2.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

THE NAUTILUS MILD STEEL DOMESTIC BOILERS

FOR HOT WATER SUPPLY AND CENTRAL HEATING BY HOT WATER

The Nautilus Fire Co. Ltd., 7 Stratford Place, London, W.1



DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	*Floor Space Required*		*Total Height**	*Hotplate in.*	*Heating Surface*	*Grate Area†*	*Fuel Capacity*	*B.Th.U. per Hour*			*Gall. per Hour Normal Domestic Rating*	
								Hot Water Supply		*Central Heating Rating*		
	Wide in.	*Deep in.*	*in.*	*Width Depth*	*sq. ft.*	*sq. ft.*	*cu. ft.*	*Continuous Rating*	*Normal Domestic Rating*		50°–100° F.	50°–150° F.
2	16½	26	31½	16½ × 17	3·45	0·834	0·75	20,700	38,000	15,200	70	35
3	16½	26	37½	16½ × 17	4·5	0·834	1·0	27,000	50,000	20,000	90	45

* *Heights for Numbers 2 and 3 are 6″ less if without feet.*
† *Revolving grate bars, with tool supplied, for clearing ashes from grate.*

1½″ pipe connections : two flows, two returns to each boiler.

Flue outlet is 4½″ dia. for Numbers 2 and 3.

Rustless Bower-Barffing process, recommended for boilers to be used in soft water districts, carried out to order.

FINISHES.—" B " pattern—Body painted Grey ; sides White porcelain enamelled ; hot plate ground ; door mouldings, ashpan, top moulding, trivet and hotplate cornice ground and polished.

" E " pattern—Exterior cast-iron parts Grey mottled porcelain enamel ; panels plain White porcelain enamel.

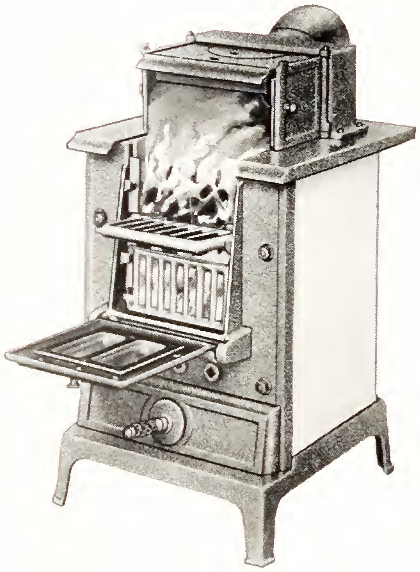
COKE SIZE RECOMMENDED : Number 3 or Number 2 for Boiler Size Number 2.
Number 2 for Boiler Size Number 3.

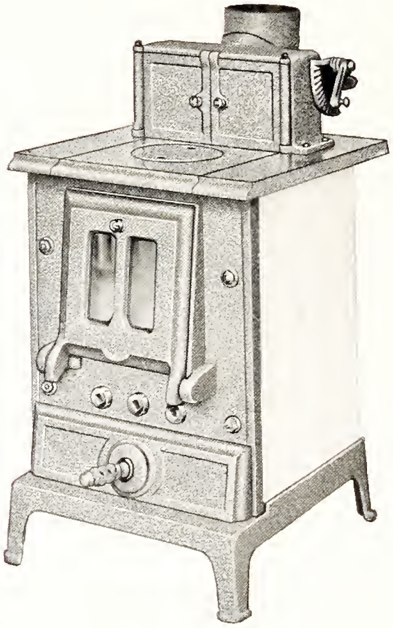
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

THE NUMBER O NAUTILUS MILD STEEL DOMESTIC BOILER

FOR HOT WATER SUPPLY AND CENTRAL HEATING BY HOT WATER

The Nautilus Fire Co. Ltd., 7 Stratford Place, London, W.1.





DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Floor Space Required		*Total Height*	*Hotplate*		*Heating Surface*	*Grate Area**	*Fuel Capacity*	*B.Th.U. per Hour*			*Gall. per Hour Normal Domestic Rating*	
								Hot Water Supply		*Central Heating Rating*		
Wide in.	*Deep in.*	*in.*	*Wide in.*	*Deep in.*	*sq. ft.*	*sq. ft.*	*cu. ft.*	*Continuous Rating*	*Normal Domestic Rating*		*50°–100° F.*	*50°–150° F.*
16	19½	30	16	16¾	2·3	0·5	0·49	13,800	25,000	10,100	50	25

* *Revolving grate bars, with tool supplied, for clearing ashes from grate.*

Baseplate, with feet, is supplied.

1½″ pipe connections : two flows and two returns.

Flue outlet is 4″ diameter.

Rustless Bower-Barffing process, recommended for boilers to be used in soft water districts, carried out to order.

FINISHES.—" B " pattern—Body painted Grey ; sides White porcelain enamelled ; hotplate ground ; door moulding, ashpan, top moulding, trivet and hotplate cornice ground and polished.

" E " pattern—Exterior cast-iron parts Grey mottled porcelain enamel ; panels plain White porcelain enamel.

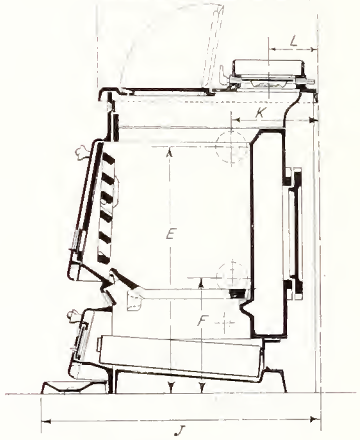
COKE SIZE RECOMMENDED : Number 3.

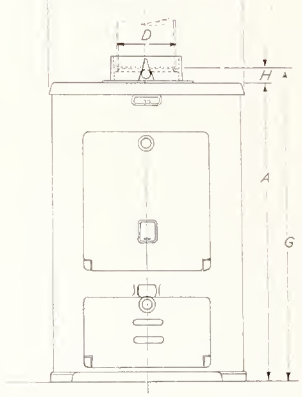
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

THE TAYCO DOMESTIC BOILERS (CAST IRON OR COPPER) NUMBERS 21M AND 25M

FOR CENTRAL HEATING OR HOT WATER SUPPLY

Robert Taylor & Co. (Ironfounders) Ltd., Larbert, Stirlingshire





DIMENSIONS—INCHES

Size Number	A	B	C	D	E	F	G	H	J	K	L	Flow and Return Tappings each side
21M	21½	14¼	15½	4	17⅜	8	22½	1	19½	6¼	3½	1¼*
25M	23¼	14¼	15½	4	19	9¾	24¼	1	19½	6¼	3½	1¼*

* 1″ for copper boiler.

Drain plug provided on L.H. side.
Mud door at back.

CAPACITIES AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Grate Area	Fuel Capacity	Heating Surface	Hot Water Supply				Hot Water Cylinder recommended	Central Heating Rating B.Th.U. per hour
				B.Th.U. per hour		Gall. per hour Normal Domestic Rating			
	sq. ft.	cu. ft.	sq. ft.	Normal Domestic Rating	Continuous Rating	50°–100° F.	50°–150° F.	gall.	
21M	0·5	0·6	2·1	21,000	12,600	42	21	30	9,240
25M	0·5	0·65	2·5	25,000	15,000	50	25	35	11,000

In accordance with B.S. No. 758 : 1945.
The bottom grate has provision for shaking.
Cast-iron boilers can be " Bower-Barffed " if required ; for use in soft water districts.
Stoking tools (special Poker and Shovel) are supplied unless otherwise ordered.
½″ Draw-off tap can be supplied.

FINISHES.—Mottle enamel with Black enamel hot plate and ash-tray.
Synthetic enamel side plates.

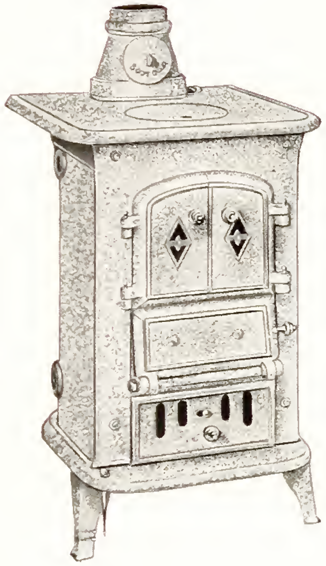
COKE SIZE RECOMMENDED : Number 3.

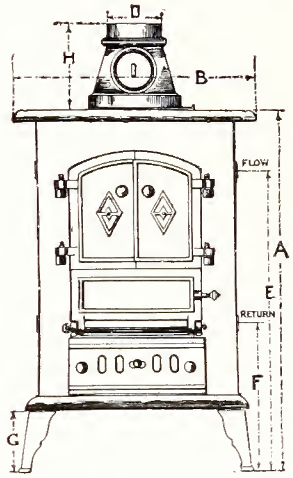
SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

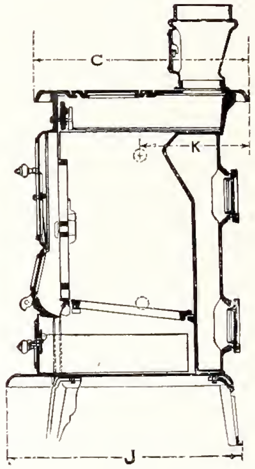
THE TAYCO DOMESTIC BOILERS (CAST IRON OR COPPER) NUMBERS 28 AND 40

FOR CENTRAL HEATING OR HOT WATER SUPPLY

Robert Taylor & Co., Larbert, Stirlingshire







DIMENSIONS—INCHES

Size Number	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K*	*L*	*Tappings each side of Boiler, Flow and Return*	
												Cast Iron	*Copper*
28	27	18¼	17½	4½	23¼	11¾	5	7¼	18¾	7¾	3⅝	1¼	1
40	29¼	20	19	4½	25½	9¼	5	7¼	20	8½	4	1¼	1

Two cleaning doors are provided at back of boiler.

CAPACITIES AND RATINGS

NOTE.—For basis of rating per sq. ft. of heating surface, see Introductory Notes.

Size Number	*Grate Area*	*Fuel Capacity*	*Heating Surface*	*Hot Water Supply*				*Hot Water Cylinder recommended*	*Central Heating Rating B.Th.U. per hour*
				B.Th.U. per hour		*Gall. per hour Normal Domestic Rating*			
	sq. ft.	*cu. ft.*	*sq. ft*	*Normal Domestic Rating*	*Continuous Rating*	*50°–100° F.*	*50°–150° F.*	*gall.*	
28	0·565	0·7	2·75	28,000	16,500	56	28	30–35	12,100
40	0·685	0·9	4·0	40,000	24,000	80	40	40–50	17,600

Boilers supplied complete with base, feet and sheet steel ashpan in which an air regulator is included.
Cast-iron boilers can be " Bower-Barffed " if required ; recommended when used in soft water districts.
Stoking tools are supplied unless otherwise ordered.
½" Draw-off tap can be supplied.
FINISHES.—Black with polished top ; or dull nickel-plated hotplate with mouldings polished.
Mottled Grey enamel, except sides, with chromium-plated fittings ; other coloured enamels supplied if required.
Side plates mottled enamel to match boiler can be supplied.

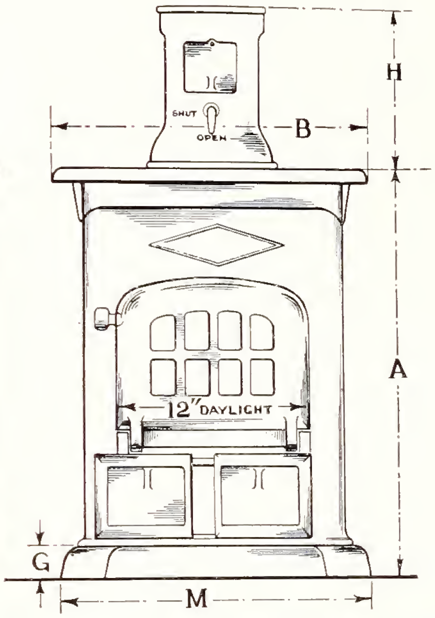
COKE SIZE RECOMMENDED : Number 3 or Number 2 for Boiler Size 28.
Number 2 for Boiler Size 40.

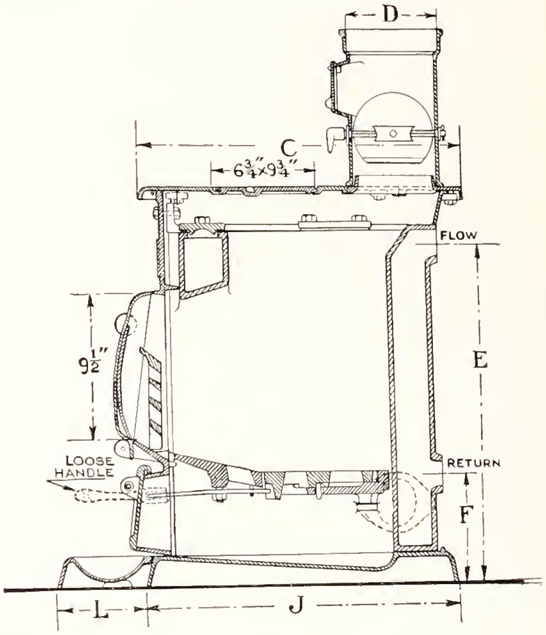
THE TAYCO DOMESTIC BOILERS (CAST IRON OR COPPER) NUMBERS 50, 60 AND 75

FOR CENTRAL HEATING BY HOT WATER OR HOT WATER SUPPLY

Robert Taylor & Co., Larbert, Stirlingshire

Tayco 60





DIMENSIONS—INCHES

Size Number	*A*	*B*	*C*	*D**	*E*	*F*	*G*	*H*	*J*	*L*	*M*	*Flow and Return Tappings at back*	
												Cast Iron	*Copper*
50	26½	20¾	22	Socket to	22	7	2	13	20½	6¼	19½	1½	1¼
60	26½	20¾	22	suit 6″ dia.	22	7	2	13	20½	6¼	19½	1½	1¼
75	31	20¾	22	pipe	26½	7	2	13	20½	6¼	19½	1½	1¼

* *Pipes or bends should be ordered with spigot end to suit this socket.*

Cleaning doors provided on top and at each side of boiler at bottom ; hot plate easily removed to allow of access to top cleaning doors.

CAPACITIES AND RATINGS

NOTE.—For basis of rating per sq. ft. of heating surface, see Introductory Notes.

Size Number	*Grate Area* sq. ft.	*Fuel Capacity* cu. ft.	*Heating Surface* sq. ft.	*Hot Water Supply B.Th.U. per hour*		*Gall. per Hour Normal Domestic Rating*		*Cylinder Capacity recommended* gall.	*Central Heating Rating B.Th.U. per hour*
				Normal Domestic Rating	*Continuous Rating*	50°–100° F.	50°–150° F.		
50	1·0	1·25	5·0	50,000	37,500	100	50	65	22,000
60	1·0	1·25	5·5	60,000	41,500	120	60	75	24,500
75	1·0	1·5	6·6	73,000	50,000	146	73	90	29,000

Boilers supplied with base, ashtray and steel ashpan.
Cast-iron boilers can be "Bower-Barffed" if required ; recommended when used in soft water districts.
Stoking tools supplied unless otherwise ordered. Draw-off cock supplied if required.

FINISHES.—Black with ground and polished hotplate ; or nickel-plated hotplate.
Mottled Grey enamel, except boiler sides ; side plates enamelled to match can be supplied. (Other coloured enamels to order.)

Cast-iron smoke pipes without faucet in 2, 3, 4 and 6 ft. lengths (with or without cleaning door), and right-angle or obtuse bends (with or without door) can be supplied to order painted, or mottle-enamelled to match boiler.

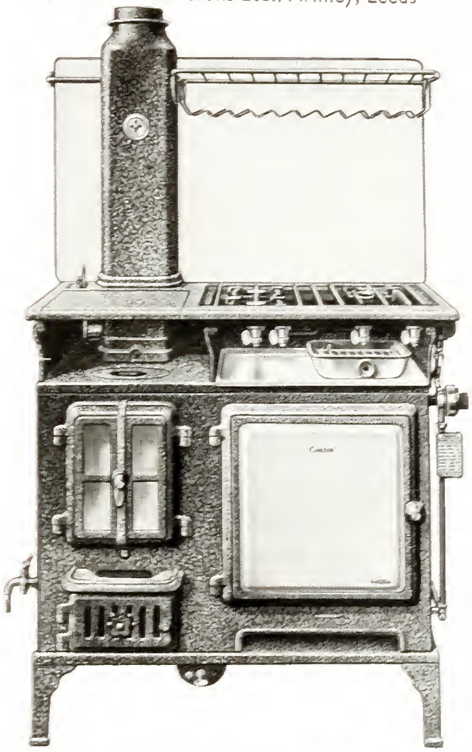
COKE SIZE RECOMMENDED : Number 2.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

THE CARLTON GAS AND COKE RANGE

COMPRISING GAS COOKER AND DOMESTIC HOT WATER SUPPLY BOILER

Wilsons & Mathiesons Ltd., Armley, Leeds



DIMENSIONS AND CAPACITIES

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Hotplate		*Height to Hotplate*	*Height to Top of Back Plate*	*Width over "Regulo"*	*Smoke Nozzle Diameter*	*Oven Inside Sizes*	*Hotplate Burners*
Overall Length in.	*Overall Depth in.*	*in.*	*in.*	*in.*	*in.*	*in.*	
36½	23¾	36	57	39	4½	H. W. D. 16 × 15½ × 14	3 boiling 1 single grill

Boiler Heating Surface sq. ft.	*Fuel Capacity cu. ft.*	*Grate Area sq. ft.*	*B.Th.U. per Hour*		*Gallons per Hour at Normal Domestic Rating*		*Size of Hot Water Cylinder recommended gall.*
			Continuous Rating	*Normal Domestic Rating*	*50°-100° F.*	*50°-150° F.*	
2·21	0·65	0·605	13,200	22.000	44	22	25-30

A Gas lighting-up burner is included.
Shaking grate provided ; Boiler constructed of $\frac{5}{16}$" wrought plate.
"Regulo" Automatic Heat Controller fitted to oven, and "Regulo" chart provided.
Draw-off tap and boiler unions provided if required.
Boiler made rustless by "Bower-Barff" process if required ; recommended for use in soft water districts.
The whole unit is finished either "Radar" (neutral tint) or "Beau" Green Mottled enamel, *complete with "Regulo" and back* plate.

COKE SIZE RECOMMENDED : Number 3.

SMALL CENTRAL HEATING AND HOT WATER BOILERS
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

THE WIZARD DOMESTIC BOILER

FOR HOT WATER SUPPLY

Yates, Haywood & Co., Rotherham.

DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Overall Sizes—in.			*Heating Surface sq. ft.*	*Grate Area sq. ft.*	*Fuel Capacity cu. ft.*	*B.Th.U. per hour*		*Height from Floor to Centre of*		*Recommended Size of Tank gall.*
Height in.	*Width in.*	*Depth in.*				*Continuous Rating*	*Normal Domestic Rating*	*Flow in.*	*Return in.*	
24	16½	16	2·51	0·47	0·52	15,000	25,000	19½	10	30

Provision is made for inserting gas poker through front of boiler when closed.
The Baffled Water Way gives additional heating surface and higher efficiency for quick production of Hot Water.
The Cleaning Cover is at back of boiler and is easy of access.
The Chimney Damper can easily be removed when necessary for flue cleaning.
¾″ Deadweight Safety Valve and ½″ Draw-off Cock supplied if required.
FINISHES.—Nickel-plated top finished either dull with Polished Moulding or polished all over ; Mottled Grey or Black vitreous enamelled finish, including boiler body, or boiler body painted aluminium ; White enamelled side panels supplied if required. Smoke pipe with and without adjustable Draught Regulator, painted one coat, supplied in 2′ or 3′ lengths, or mottled enamel finish to match boiler.
Boiler body Bower Barffed if required : recommended for use in soft water districts.
COKE SIZE RECOMMENDED : Number 3.

SECTION C

SMALL
CENTRAL HEATING
AND/OR
HOT WATER SUPPLY BOILERS
(HAND-FIRED)

SECTION C

SMALL CENTRAL HEATING AND/OR HOT WATER SUPPLY BOILERS (HAND-FIRED)

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IDEAL BOILERS & RADIATORS LTD.

Ideal Neo-Classic, Numbers 1 and 2 Series Boilers . . . . Cd.1—1948

LUMBYS LTD.

Solar Cast Iron Sectional Model O, New Series Boilers Ce.1

SECTION C

SMALL CENTRAL HEATING AND/OR HOT WATER SUPPLY BOILERS (HAND FIRED)

INTRODUCTION

The standards which have been adopted for the boilers included in this section are those generally accepted by heating engineers and which have been found by practical experience to be satisfactory. With all boilers which are not subject to guarantee tests and which may be used under widely different conditions it is most difficult to fix an average figure for heat transmission per unit of heating surface. Thus, the Boiler Rating Committee of the Institution of Heating and Ventilating Engineers in its report, published in 1911, states, "The Committee fully recognised the difficulty in fixing upon a basis of rating which would be absolutely fair for all types of boilers. To do this would involve extensive tables fixing the emission power with different rates of combustion. Such tables were considered and strongly advocated by some Members of the Committee. The value of such information was admitted, but it was felt by the majority that such tables would be too elaborate for general catalogue purposes, even if the Boiler Manufacturers were in a position to give the information, involving as it would a very considerable series of tests of every type of boiler." No further Committee has attempted to solve this difficult problem, and by common consent the rating for central heating boilers is taken at 4,400 B.Th.U. per sq. ft. of heating surface per hour. All boilers for central heating included in this section are therefore rated at this figure. In standards of construction the boilers conform to British Standard 779 : 1938.

HEATING SURFACE

In accordance with the findings of the Boiler Rating Committee of the Heating and Ventilating Institution, the heating surface has been taken to be "Those portions of the fire-box and flue surface with which the fire or gases come into direct contact."

FUEL CAPACITY

The Boiler Rating Committee mentioned above, stated that "the nominal fuel capacity should be the total capacity of the fire chamber, the effective fuel capacity to be given by the manufacturer." It has been found that the general practice of the manufacturer is to take the effective fuel capacity as 75 per cent. of the total cubic content of the fire chamber. All the values given in the data sheets have therefore been calculated on this basis.

HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

REFUELLING PERIOD

For central heating boilers it is desirable that the refuelling period should be as long as possible. A period of five hours at a heat output of 75 per cent. of the rated value has been considered satisfactory. In calculating this period it is necessary to make certain assumptions. It is assumed an amount of fuel equivalent to 60 per cent. of the fire chamber can be burnt before refuelling is required. Since the effective fuel capacity is 75 per cent. of the fire chamber this figure of 60 per cent. allows a volume of fuel equal to 15 per cent. for rekindling. It is also assumed that the average boiler efficiency may be taken as 60 per cent., and that the boiler is not usually required to operate at more than 75 per cent. of its rated output. For average gas coke the calorific value has been taken to be 13,100 B.Th.U. per lb. (dry basis) and the average bulk density as 24 lb. per cu. ft. (dry basis).

FIRE GRATE

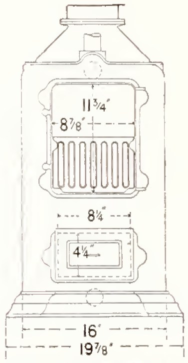
The area of the fire grate has been taken to be the product of the width and length of the fire chamber in the plane of the grate.

To avoid clinker formation with coke it is necessary, especially where grill type fire-bars are fitted, to have the air space in the grate not less than $\frac{5}{8}$ in. wide. It has been found that with this width the total area of air space is not critical, and values between 25 and 35 per cent. of the area of the grate (as defined above) have proved to be satisfactory.

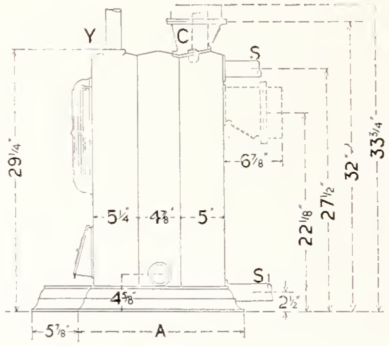
THE BEESTON ROBIN HOOD ROYAL OPEN FIRE TYPE BOILERS

FOR CENTRAL HEATING BY HOT WATER

The Beeston Boiler Co. Ltd., Beeston, Nr. Nottm.



FRONT ELEVATION



SIDE ELEVATION

DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	*Length A* *in.*	*Smoke Pipe Diameter* *in.*	*Heating Surface* *sq. ft.*	*B.Th.U. per Hour*	*Effective Fuel Capacity* *cu. ft.*	*Grate Area* *sq. ft.*	*Tappings Number and Size*	
							*Flow ** *in.*	*Return* *in.*
3ROF	19¼	5	8·0	36,200	0·84	0·77	1–2	1–2
4ROF	23⅝	5	10·33	45,500	1·25	1·21	1–2	1–2
5ROF	28⅝	5	12·66	56,000	1·66	1·62	3–2	3–2
6ROF	33⅜	6	15·0	66,000	2·06	1·96	3–2	3–2

* *Top flow tappings are in front at Y when top smoke outlet is supplied. With back smoke outlet flow tapping is at C.*

Chimney damper : With back outlet, wing damper with rod worked from front of boiler.
Top outlet has sliding damper.

All smoke outlets are sockets to take plain end of smoke pipe and are fitted with check draught door. Smoke outlet on top or at back. Top outlet supplied unless otherwise ordered.

Tappings include one ¾" for draw-off : ½" thermometer and ¾" safety valve, the two latter being on top of front section.

Stoking tools and ¾" draw-off cock with key supplied to order.

Boilers are sent out assembled complete, or can be despatched in separate sections for erecting on site with 2" heavy screwed malleable nipples.

Firegrate is in two halves.

Front and Back sections weigh 1¼ cwt. Middle section 90 lb.

Supplied with steel jacket, and with boiler top, doors and base, etc., in Grey or Brown mottled enamel, or other colours to special order.

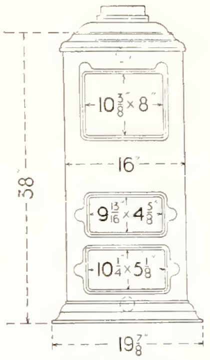
Galvanized steel jackets with or without asbestos can be supplied, but enamelled jackets are without asbestos.

COKE SIZE RECOMMENDED : Number 2 for all Boilers.

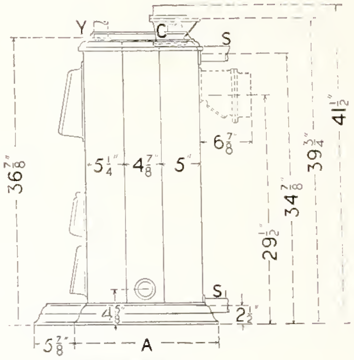
THE BEESTON ROBIN HOOD ROYAL BOILERS NUMBER I

FOR CENTRAL HEATING BY HOT WATER

The Beeston Boiler Co. Ltd., Beeston, Nr. Nottm.



FRONT ELEVATION



SIDE ELEVATION

DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	*Length A* *in.*	*Smoke Pipe Diameter* *in.*	*Heating Surface* *sq. ft.*	*B.Th.U. per Hour*	*Effective Fuel Capacity* *cu. ft.*	*Grate Area* *sq. ft.*	*Tappings Number and Size* *Flow ** *in.*	*Return* *in.*
3RI	$19\frac{1}{4}$	5	11·25	49,500	1·01	0·77	1–2	1–2
4RI	$23\frac{5}{8}$	5	14·25	62,700	1·49	1·18	1–2	1–2
5RI	$28\frac{5}{8}$	5	17·25	75,900	1·97	1·62	3–2	3–2
6RI	$33\frac{3}{8}$	6	20·25	89,100	2·46	1·96	3–2	3–2

* *Top flow tappings are in front at Y when top smoke outlet is supplied. With back smoke outlet flow tapping is at C.*

Chimney damper : With back outlet, wing, damper with rod worked from front of boiler.
Top outlet has sliding damper.

All smoke outlets are sockets to take plain end of smoke pipe and are fitted with check draught door. Smoke outlet on top or at back. Top outlet supplied unless otherwise ordered.

Tappings include one $\frac{3}{4}''$ for draw-off ; $\frac{1}{2}''$ thermometer and $\frac{3}{4}''$ safety valve, the two latter being on top of front section.

Stoking tools and $\frac{3}{4}''$ draw-off cock with key supplied to order.

Boilers are sent out assembled complete, or can be despatched in separate sections for erecting on site with 2″ heavy screwed malleable nipples.

Front and back sections weigh $1\frac{1}{2}$ cwt. Middle section weighs 1 cwt.

Supplied with steel jacket, and with boiler top, doors and base, etc., in Grey or Brown mottle enamel, or other colours to special order.

Galvanized steel jackets with or without asbestos can be supplied, but enamelled jackets are without asbestos.

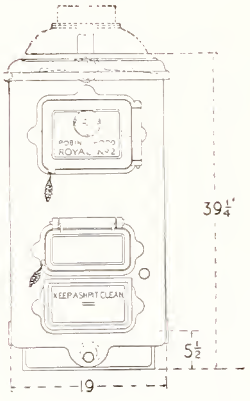
COKE SIZE RECOMMENDED : Number 2 for all Boilers.

HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

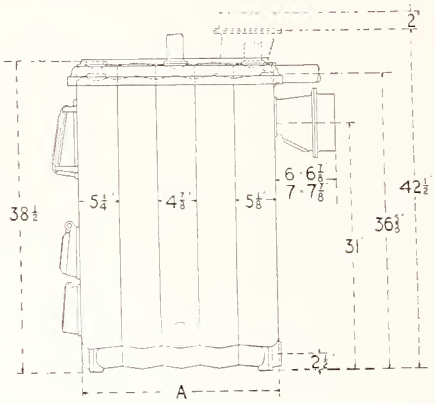
THE BEESTON ROBIN HOOD ROYAL BOILERS NUMBER 2

FOR CENTRAL HEATING BY HOT WATER

The Beeston Boiler Co. Ltd., Beeston, Nr. Nottm



FRONT ELEVATION



SIDE ELEVATION

DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	Length A in.	Smoke Pipe Diameter Top Flue in.	Smoke Pipe Diameter Back Flue in.	Heating Surface sq. ft.	B.Th.U. per Hour	Effective Fuel Capacity cu. ft.	Grate Area sq. ft.	Tappings Number and Size Flow * in.	Tappings Number and Size Return in.
32RN	15¼	6	6	13·66	60,000	1·30	1·0	1–2	1–2
42RN	20⅛	6	6	18	79,000	1·87	1·5	1–2	1–2
52RN	25	6	7	22·33	98,000	2·45	2·0	3–2	3–2
62RN	29⅞	6	7	26·66	117,000	3·18	2·48	3–2	3–2
72RN	34¾	6	7	31	136,000	3·6	3·0	3–2	3–2
†82RN	39⅝	6	7	35·33	155,000	4·07	3·5	3–2	3–2

* *Top flow tappings are in front of smoke flue when top smoke outlet is supplied. With back smoke outlet flow tapping is on top of back section.*

† *No top plate supplied with this boiler.*

Chimney damper: With back outlet, wing damper with rod worked from front of boiler.
Top outlet has sliding damper.

All smoke outlets are sockets to take plain end of smoke pipe and are fitted with check draught door. Smoke outlet on top or back. Top outlet supplied unless otherwise ordered.

Door openings: Fire door, 10⅝" wide × 8¼" high; Clinker door, 10¼" wide × 4¾" high; Ash door, 10¼" wide × 5" high.

Tappings include one ¾" for draw-off; ½" thermometer and ¾" safety valve, the two latter being on top of front section.

Stoking tools and ¾" draw-off cock with key supplied to order.

Three and four-section boilers sent out assembled in one piece; longer boilers in two pieces, with instructions for assembling; if desired can be despatched in separate sections for assembly on site with 2¼" heavy screwed malleable nipples.

Front and back sections each weigh 2 cwt. Middle sections weigh 1¼ cwt.

Supplied with steel jacket and with boiler top, doors, etc., in Grey or Brown mottled enamel, or other colours to special order.

Galvanized steel jackets with or without asbestos can be supplied, but enamelled jackets are without asbestos.

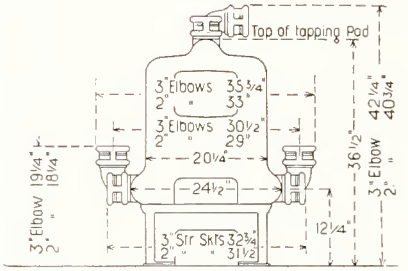
COKE SIZE RECOMMENDED: Number 2 for all Boilers.

HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

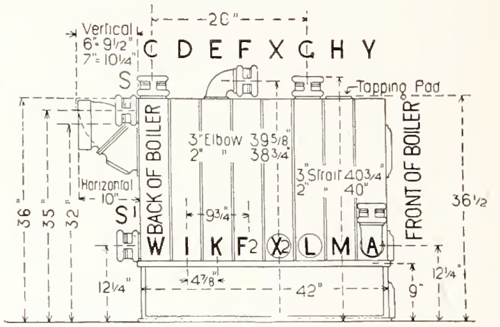
THE BEESTON ROBIN HOOD JUNIOR BOILERS

FOR CENTRAL HEATING BY HOT WATER

The Beeston Boiler Co. Ltd., Beeston, Nr. Nottm.



END ELEVATION



SIDE ELEVATION

DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number and Number of Sections	*Outside Dimensions of Stand in. Length Width*	*Smoke Pipe * Diameter in.*	*Heating Surface sq. ft.*	*B.Th.U. per Hour*	*Effective Fuel Capacity cu. ft.*	*Grate Area sq. ft.*	*Tappings Number and Size*		*Composition to Cover Boiler 2 in. thick lb.*
							Flow	*Return*	
							in.	*in.*	
3B	18 × 20½	6	13·2	58,000	1·5	1·49	1–2	1 or 2–2	112
4B	23 × 20½	6	17·4	76,500	2·11	2·06	2–2	2–2	136
5B	27¼ × 20½	6	21·71	95,500	2·83	2·63	2–2	2–2	160
6B	32 × 20½	7	25·15	110,600	3·5	3·15	2–2	2–2	184
7B	38 × 20½	7	30·22	132,900	4·16	3·78	2–2	2–2	208
8B	42 × 20½	7	34·53	151,900	4·84	4·29	2–2	2–2	232

* *Nos. 3B to 7B can be supplied with front nozzle if ordered. Flow tappings are arranged to suit smoke nozzle.*

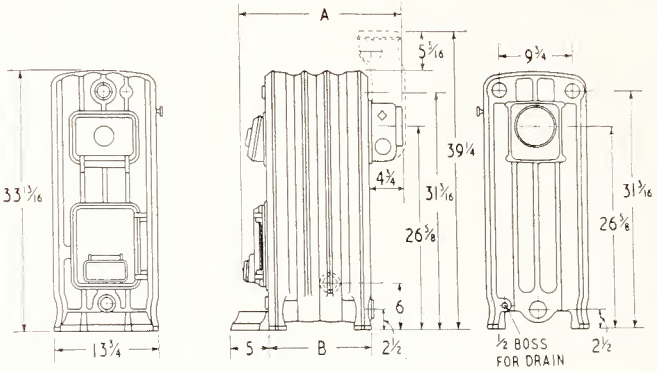
Whenever possible boiler should be mounted on brickwork to increase depth of ashpit a few inches.
When fitted with front smoke flue, projection from front of boiler is 9″.
Fire door opening, 10⅜″ wide × 8″ high ; Ash door, 10¼″ wide × 5″ high ; Clinker door opening, 10″ wide × 5¾″ high.
Smoke nozzle can be horizontal or vertical.
Distance from back of back section to centre of vertical smoke flue—6″.
All smoke outlets are sockets to take plain end of smoke pipe and fitted with check draught door.
Inside depth of smoke socket 2″ ; with front flue, 1¾″. Inside diameters of smoke sockets are 6$\frac{7}{16}$ and 7½″. Centre of flue opening on back section is 29″ from ground.
When flow is at " S " smoke flue is horizontal.
Number 4B to Number 8B " JUNIOR " Robin Hood Boiler inclusive :
3–3″ tappings at A.B.C., or
2–3″ tappings at S.S1,
can be supplied in place of 2″ tappings if required.
Tappings include 1″ for safety valve ; ½″ thermometer and two 1″ draw-off tappings.
An air pipe 1″ dia. is recommended for fitting to this series.
Threaded pipe sockets only supplied if ordered.
Front and back sections measure 6″ ; middle sections measure 4½″ and are 4⅞″ from centre to centre. Weight of boiler complete, including stand, 1¾ cwt. per section approximately.
Galvanized steel jackets can be supplied with or without asbestos lining.

COKE SIZE RECOMMENDED : Number 2 for all Boilers.

CARLTON SERIES O BOILERS BASEMENT MODEL

FOR CENTRAL HEATING BY HOT WATER

Crane Ltd., 45 Leman Street, E.1.



DIMENSIONS

Boiler Size Number	*A Overall Length in.*	*B Length of Boiler in.*	*Smoke Pipe Size in.*	*Tappings at Back*	
				*Flow ** in.	*Return †* in.
03	20½	12⅜	5	2–2	1–2
04	22	13⅞	5	2–2	1–2
05	25	16⅞	5	2–2	1–2
06	28	19⅞	5	2–2	1–2
07	31	22⅞	5	2–2	1–2

* *One additional Flow tapping 1½″ size can be furnished on top to special order—½″ and ¾″ tappings for thermometer and safety valve are provided, although not shown.*

† *Additional 1½″ Return tappings can be furnished at either side to order.*

¾″ tapped boss for damper regulator is provided on front of boiler, and plugged if not required.
Smoke outlet looking upwards is standard ; outlet to the back if specially ordered.
Smoke outlets are sockets.
Boilers are delivered with sections assembled.
Water-cooled grate bars are supplied with this series.

RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Boiler Size Number	*Boiler Heating Surface sq. ft.*	*B.Th.U. per Hour*	*Effective Fuel Capacity cu. ft.*	*Grate Area sq. ft.*	*Water Content gall.*
03	7·25	32,000	0·73	0·63	5·85
04	9·35	41,000	0·84	0·75	6·25
05	11·35	50,000	1·11	0·97	7·10
06	13·40	59,000	1·36	1·21	7·95
07	15·45	68,000	1·62	1·44	8·75

Boiler can be supplied:—
- (*a*) Black finish.
- (*b*) With asbestos-lined galvanized sheet steel jackets.

COKE SIZE RECOMMENDED : Number 3 or Number 2 for Boiler Size Number 03.
Number 2 for Boiler Size Numbers 04 to 07.

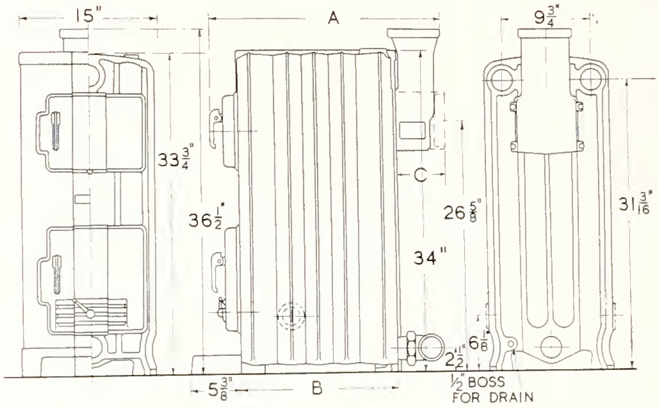
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

NEW CARLTON BOILERS

FOR CENTRAL HEATING BY HOT WATER

Crane Ltd., 45 Leman Street, E.1.

This series is supplied with open fire front in sizes Numbers 3–OF to 6–OF inclusive, dimensions, ratings, etc., being the same. See page Cb.3—1948.



DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Boiler Size Number	A Overall Length in.	B Length of Boiler in.	C in.	Smoke Pipe Size in.	*Tappings at Back* Flow* Room Model in.	*Tappings at Back* Flow* Basement Model in.	*Tappings at Back* Return† Both Models in.	Boiler Heating Surface sq. ft.	B.Th.U. per Hour	Effective Fuel Capacity cu. ft.	Grate Area sq. ft.	Water Content gall.
3	$20\frac{1}{2}$	$12\frac{1}{2}$	5	$4\frac{1}{2}$	2–2	1–2	1–2	7·40	32,500	0·87	0·70	4·5
4	22	14	5	$4\frac{1}{2}$	2–2	1–2	1–2	9·55	42,000	1·05	0·80	5·2
5	25	17	$5\frac{3}{8}$	5	2–2	1–2	1–2	11·70	51,500	1·35	1·05	5·9
6	28	20	$5\frac{3}{8}$	5	2–2	1–2	1–2	13·85	61,000	1·65	1·30	6·6

* *Basement model only is regularly supplied with 2″ flow on top of rear section and the two 2″ flows on face of rear section plugged.*

† *Additional 1½″ Return tappings can be furnished at either side of intermediate sections if specially ordered.*

Front section (Basement model only) is provided with ½″ and ¾″ tappings for thermometer and safety valve.

Boilers can be supplied with smoke outlet looking upwards or to the back. The former is supplied unless otherwise instructed.

Smoke outlets are sockets.

Water-cooled grate bars are supplied.

All boilers are delivered with sections assembled, unless otherwise instructed.

Boiler can be supplied in the following styles :

Room Model : Boiler with jacket vitreous enamelled mottle Grey.
Basement Model (for Export) : Black finish ; or with asbestos-lined galvanized sheet steel jacket.

COKE SIZE RECOMMENDED : Number 2 for all Boilers.

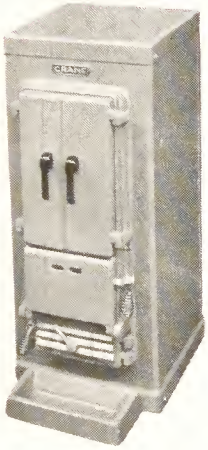
NEW CARLTON BOILERS

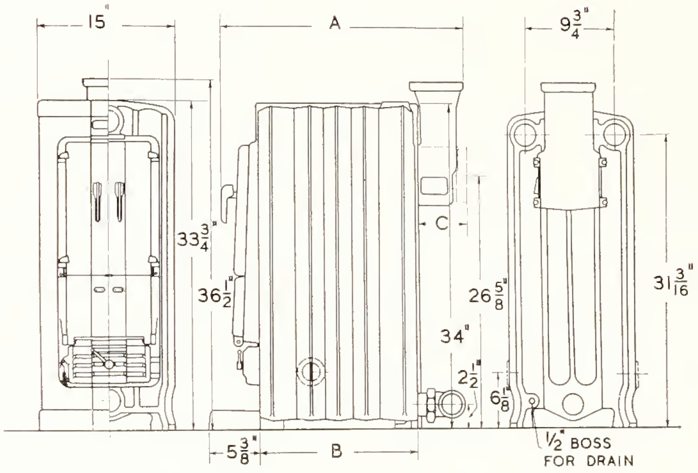
WITH OPEN FIRE FRONT

FOR CENTRAL HEATING BY HOT WATER

Crane Ltd., 45 Leman Street, E.1.

This series is supplied without the open fire front in sizes Numbers 3 to 6 inclusive, dimensions and ratings being the same. See page Cb.2—1948.





DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Boiler Size Number	*A Overall Length*	*B Length of Boiler*	*C*	*Smoke Pipe Size*	*Tappings at Back*		*B.Th.U. per Hour*	*Effective Fuel Capacity*	*Grate Area*	*Water Content*
					Flow	*Return†*				
	in.	*in.*	*in.*	*in.*	*in.*	*in.*		*cu. ft.*	*sq. ft.*	*gall.*
3–OF	21	12½	5	4½	2–2	1–2	32,500	0·87	0·70	4·1
4–OF	22½	14	5	4½	2–2	1–2	42,000	1·05	0·80	4·8
5–OF	25½	17	5⅜	5	2–2	1–2	51,500	1·35	1·05	5·5
6–OF	28½	20	5⅜	5	2–2	1–2	61,000	1·65	1·30	6·1

† *Additional 1½″ Return tappings can be furnished at either side of intermediate sections if specially ordered.*

Boilers can be supplied with smoke outlet looking upwards or to the back. The former is supplied unless otherwise instructed.

Smoke outlets are sockets.

Water-cooled grate bars are supplied.

All boilers are delivered with sections assembled, unless otherwise instructed.

Boiler can be supplied in the following style :

Boiler with jacket vitreous enamelled mottle Grey.

COKE SIZE RECOMMENDED : Number 2 for all Boilers.

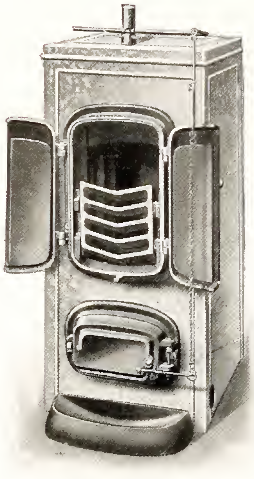
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

WHITE ROSE CAST IRON SECTIONAL YORK BOILERS

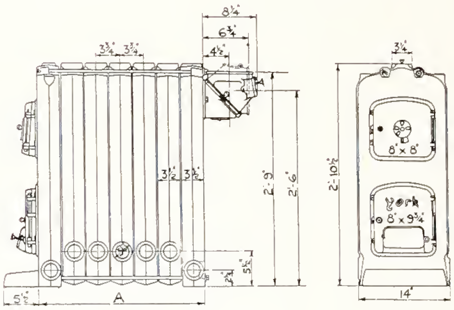
FOR CENTRAL HEATING BY HOT WATER

Hartley & Sugden Ltd., Halifax.

With Closed Fire and without Jacket.



With Open Fire and Insulating Jacket Galvanized or Enamelled.



RATINGS AND DIMENSIONS

Boiler Size Number	*Heating Surface* *sq. ft.*	*Grate Area* *sq. ft.*	*Effective Fuel Capacity* *cu. ft.*	*Water Content* *gall.*	*Length A* *in.*	*Smoke Nozzle Diameter* *in.*	*B.Th.U. per Hour*
Y3	7·41	0·535	0·671	6·1	11	5	32,600
Y4	9·86	0·815	1·018	7·4	14¾	5	43,500
Y5	12·31	1·095	1·365	8·7	18½	5	54,200
Y6	14·76	1·375	1·712	10·0	22¼	5	65,000
Y7	17·21	1·655	2·059	11·3	26	5	76,000
Y8	19·66	1·935	2·406	12·6	29¾	6	87,000

Firebars are of grill pattern.

Pipe Connections are screwed up to and including 2″ diameter. Returns can be on both sides : 2½″ from floor to centre on front and back sections ; 5½″ from floor to centre on intermediate sections.

A return can be provided on back face 2½″ from floor to centre. Flows can be provided on any section except front, 2′ 10½″ from floor to face. Necessary tappings for mountings are provided on front section.

Automatic damper control, screwed ¾″, stoking tools and loose ashpan can be provided.

Smoke pipe connection is universal type with socket end for horizontal or vertical connection, provided with cleaning door, check draught damper, and sliding damper. Vertical smoke pipe connection supplied unless ordered otherwise.

"Bower-Barffing" process undertaken to order, and recommended for boilers to be used in soft water districts.

Boilers are delivered with sections assembled unless ordered otherwise. Sections are connected by tapered push nipples, enabling additional sections to be fitted as and when required.

Boilers are supplied with closed or open fire front, as required.

Boilers can be supplied with galvanized or stove enamelled steel insulating jackets.

Enamel finish includes all castings external to boiler in vitreous enamel plain colours : Black, Green, Blue or Brown ; or with Cream insulating jacket and Black castings.

COKE SIZE RECOMMENDED : Number 3 or Number 2 for Boiler Size Number Y3.
Number 2 for Boiler Size Numbers Y4 to Y8.

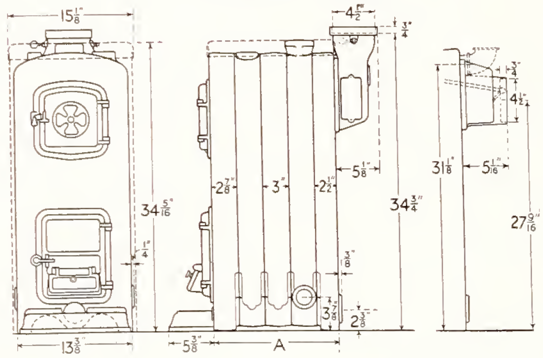
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

IDEAL NEO-CLASSIC BOILERS

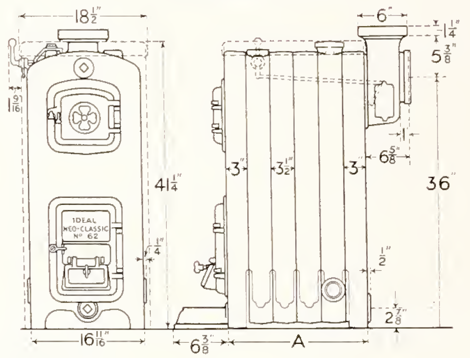
FOR CENTRAL HEATING BY HOT WATER

Ideal Boilers and Radiators Ltd., Hull.
London Office : Ideal House, Gt. Marlborough Street, W.1.

NUMBER 1 SERIES



NUMBER 2 SERIES



DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Size Number	*Number of Sections*	*Length of Boiler A* *in.*	*Tappings Number and Diameter* *Flow Outlets on top* * *in.*	*Tappings Number and Diameter* *Returns at back* *in.*	*Heating Surface* *sq. ft.*	*B.Th.U. per Hour*	*Effective Fuel Capacity* *cu. ft.*	*Grate Area* *sq. ft.*	*Water Capacity* *gall.*
NC-31	3	8⅜	1-2	1-2	5·5	23,600	0·6	0·5	2·9
NC-41	4	11⅜	1-2	1-2	7·6	33,200	0·9	0·72	3·6
NC-51	5	14⅜	1-2	1-2	9·7	42,800	1·2	0·94	4·3
NC-61	6	17⅜	1-2	1-2	11·8	52,400	1·5	1·16	5·0
NC-71	7	20⅜	1-2	1-2	13·9	62,000	1·8	1·38	5·7
NC-42	4	13	1-2½	1-2½	14·0	62,000	1·4	1·05	5·9
NC-52	5	16½	1-2½	1-2½	17·2	76,200	1·9	1·38	7·0
NC-62	6	20	1-2½	1-2½	20·4	90,400	2·4	1·71	8·1
NC-72	7	23½	1-2½	1-2½	23·6	104,600	2·8	2·04	9·2
NC-82	8	27	1-2½	1-2½	26·8	118,800	3·4	2·37	10·3
NC-92	9	30½	1-2½	1-2½	30·1	133,000	3·9	2·70	11·4

* *Numbers NC 31-71 : Provided horizontal smokehood is ordered, a 2″ flow connection on face of back section can be obtained by means of a street elbow (see diagram above).*

Numbers NC 31-71, 1½″ ; distance from floor to centre, 3⅞″.
Numbers NC 42-92, 2″ ; distance from floor to centre, 5½″.
Return tappings on both sides of intermediate section can be provided to special order.

Series Number 1 fitted with smokehood with socket outlet for spigot end of 4½″ cast iron smokepipe.

Series Number 2 fitted with interchangeable smokehood with socket outlet for spigot end of 6″ cast iron smokepipe. Grill pattern grate bars.

Stoking tools and ½″ draw-off cock supplied, unless otherwise ordered.

Supplied with or without insulating galvanized steel jacket.

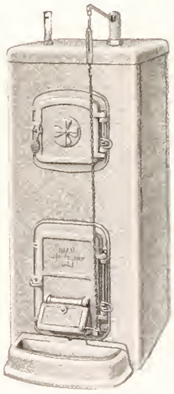
Boiler platework and jacket vitreous enamelled to order in Grey mottle.

These boilers have one 1½″ and one ½″ tapping on top of second section for Regulator and Thermometer.

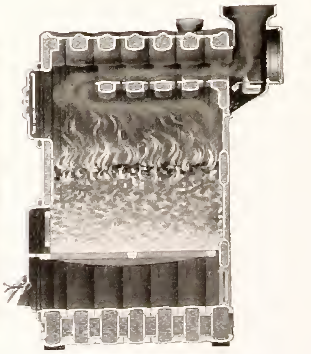
Numbers NC 31-71 : Vertical smokehood supplied unless horizontal is specified.

COKE SIZE RECOMMENDED :

Number 3 for Boiler Size NC-31.
Number 2 or Number 3 for Boiler Sizes NC-41 to NC-71.
Number 2 or Number 3 for Boiler Sizes NC-42 and NC-52.
Number 2 for Boiler Sizes NC-62 to NC-92.



Number 1.—Enamelled Jacket, Horizontal Smokehood and back flow.



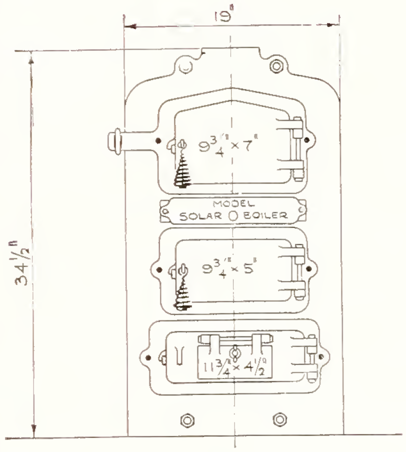
Number 2.—Sectional view showing flue travel and waterways.

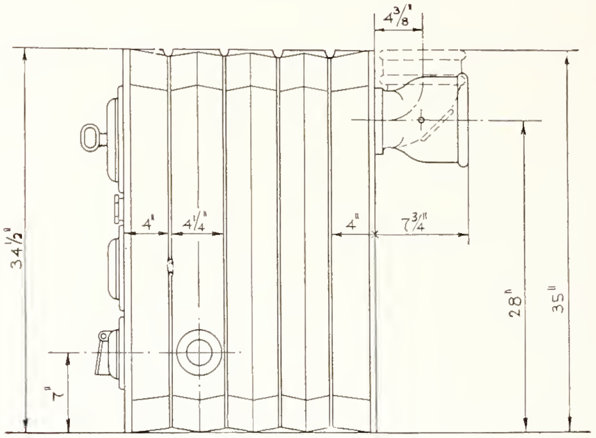
HEATING STOVES
MISCELLANEOUS
PUBLICATIONS

SOLAR CAST IRON SECTIONAL MODEL O NEW SERIES BOILERS

FOR CENTRAL HEATING BY HOT WATER

Lumbys Ltd., Halifax.





DIMENSIONS AND RATINGS

NOTE.—For basis of rating per square foot of heating surface, see Introductory Notes.

Boiler Number	Number of Sections	Length excluding Flue Pipe	Effective Fuel Capacity	Grate Area	Water Capacity	Heating Surface	B.Th.U. per Hour	Tappings *		
								Number and Size	Distance from Floor	
									Flow	Return
		in.	cu. ft.	sq. ft.	gall.	sq. ft.		in.	in.	in.
03	3	12¾	1·06	0·83	6·0	8·5	30,000	4–2	34½	7
04	4	17¼	1·59	1·27	7·5	11·0	48,000	4–2	34½	7
05	5	21¾	2·12	1·71	9·0	15·0	66,000	4–2	34½	7
06	6	26¼	2·65	2·15	10·5	17·5	77,000	4–2	34½	7
07	7	30¾	3·18	2·59	12·0	20·0	88,000	4–2	34½	7

* *A special 2″ flow tapping off back section above flue pipe, and a 2″ horizontal flow off back 32¾″ from floor to centre can be supplied if required.*

NOTE.—This series can be supplied with front flue outlet if required.

The waterway extends below the firebars and under the bottom, so that the boiler may stand on a wood floor without danger.

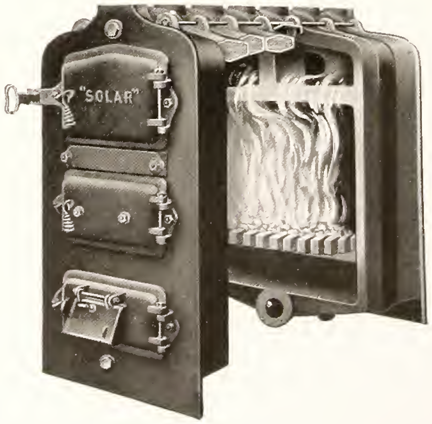
Smoke flue diameter is 6″ with socket end.

Intermediate sections cannot be tapped larger than 2″.

Automatic draught regulator, brass draw-off cock and stoking tools can be supplied.

Two ¾″ tappings supplied in front section for safety valve and draw-off cock.

Galvanized insulated steel casing can be supplied.



COKE SIZE RECOMMENDED : Number 2 for all Boilers.

HEATING STOVES
MISCELLANEOUS
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SECTION F

HEATING STOVES

HEATING STOVES
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SECTION F

HEATING STOVES

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THE LONDON WARMING COMPANY LTD.

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ALLIED IRONFOUNDERS LTD.

Number 2 Otto Heating Stove Fb.1

THE EAGLE RANGE AND GRATE CO. LTD.

The Eagle Coke Heater Fc.1

TANGYES LTD.

Tangye Heating Stove . . . . Fd.1—1948

SECTION F

HEATING STOVES

I. INTRODUCTION

Heating stoves are designed so that they may be kept alight continuously and those used in domestic dwellings are either of the closed or openable types. The latter type, when operated with the doors open, is very similar to an independent open fire except that the fire opening is generally considerably smaller and this accounts for the lower radiation heat output obtained. A further type of heating stove is suitable for heating workshops, etc., and one or two examples are included in this section. The factory heating stove is always of the closed type and the air heating surface is higher in relation to the fire grate area than it is with the domestic heating stove.

The openable type of stove may be fitted with a back boiler which may provide the domestic hot water supply or heat hot water radiators. Large back boilers can be fitted when both of these duties are required. Closed stoves are seldom provided with boilers.

II. TYPES OF HEATING STOVES

The British Code of Practice now in preparation covers the following types of Openable Stove :—

Freestanding stove without boiler.
Freestanding stove with boiler.
Inset stove without convector jacket.
Inset stove with convector jacket.

III. BASIS OF APPROVAL

A British Standard Specification is in course of preparation dealing with openable heating stoves and a section will also be included in the Code of Practice on independent fires. The domestic heating stoves in this section meet the following requirements :—

Size of Coke

The recommended size of coke is No. 2 (broken) and all new heating stoves are required to operate on this size of coke.

(*a*) **Dimensional and Constructional Standards**

(i) ***Fuel Capacity.*** The fuel capacity shall be sufficient to permit a 10-hour unattended burning period under banked conditions. For No. 2 (broken) coke this generally means a fuel capacity of not less than 0·6 cu. ft.

(ii) ***Air Control.*** The heating stove shall be fitted with an adequate air control damper or dampers so that—

(*a*) the setting for overnight banking can be obtained easily ; and

(*b*) when the damper is fully open the combustion rate with coke shall not exceed 4 lb. per hour.

(iii) ***Overall Dimensions.*** The overall dimensions of inset models shall be suited to the dimensions of the builders' opening given for open fires in B.S. 1251 : 1945.

(iv) ***Firegrate.*** Shaking grates shall be fitted.

(v) ***Ashpan and Ashpit.*** The ashpit shall be sufficiently deep so that, provided the ashpan is emptied at least every 14 hours, ash will not build up to within 1½ in. of the firegrate.

(vi) ***Finish.*** The finish shall be durable and easily cleaned. Vitreous enamel shall conform with appropriate requirements of B.S. 1344 : 1947.

(*b*) Performance Standards

Performance standards for openable heating stoves have been agreed with the Ministry of Fuel and Power, and these are as follows :—

(i) *Openable Stoves with Boiler*

BANKING. The banking period shall be 10 hours and the coke consumption during this period shall not exceed 10 lb.

OVERALL EFFICIENCY. When tested under the conditions of the high radiation output test, *i.e.*, with doors open, the overall efficiency of radiation plus convection plus hot water shall not be less than 50 per cent.

BOILER EFFICIENCY AND OUTPUT. When tested under the conditions of the high radiation output test, *i.e.*, with doors open, the boiler efficiency shall be not less than 20 per cent. and the boiler output shall be not less than 4,000 B.Th.U. per hour. With doors closed the boiler efficiency shall be not less than 25 per cent.

(ii) *Openable Stoves without Boiler*

BANKING. The banking period shall be 10 hours and the coke consumption during this period shall not exceed 7½ lb.

OVERALL EFFICIENCY AND OUTPUT. When tested under conditions of high radiation output, *i.e.*, with doors open, the overall efficiency radiation plus convection shall not be less than 40 per cent. and the total heat output radiation plus convection shall not be less than 54,000 B.Th.U. during the six hour test.

IV. INSTALLATION

Considerable care has to be taken in the selection and installation of the openable heating stove, e.g., with some types the heat output as radiation is insufficient to provide all the space heating of the room in which the appliance is fixed, even when it is used with the doors open. In such circumstances the warm air obtained from the casing should be discharged into the same room. If it is required to heat other parts of the house, a larger size of heating stove has generally to be fitted or, alternatively, a heating stove with a larger back boiler should be used to provide the required background heating from hot water radiators. The advice of the makers or of this Federation should be obtained before fitting a heating stove which is required to provide background heat in rooms other than that containing the appliance.

All the dimensions of the builders' opening, including the height of 42 in. from hearth to lintel, apply equally to heating stoves and convector open fires. Indeed, it is desirable that this should be so since it not only simplifies installation but makes possible either :—

(*a*) changes in the heating appliances at a late stage of house construction ; or

(*b*) replacement of one type of appliance with another should this be required at any time.

The following points in connection with the installation of heating stoves in domestic dwellings require special attention.

i. **Ventilation and Break Draught.** Heating stoves are not generally provided with a break draught. Provision of an independent break draught is desirable to simplify control of the rate of combustion during the banking period and also to avoid possible damage to the appliance should the ashpit cover be left off.

To provide the necessary ventilation when the doors are closed, some outlet to the chimney is also required. Fig. I shows the method of installation for a free-standing stove in a recess which fulfils these requirements. Fig. 2 shows the method for an inset stove. Detachable back or side panels are necessary with an inset stove to give access to the flow and return pipes from the boiler.

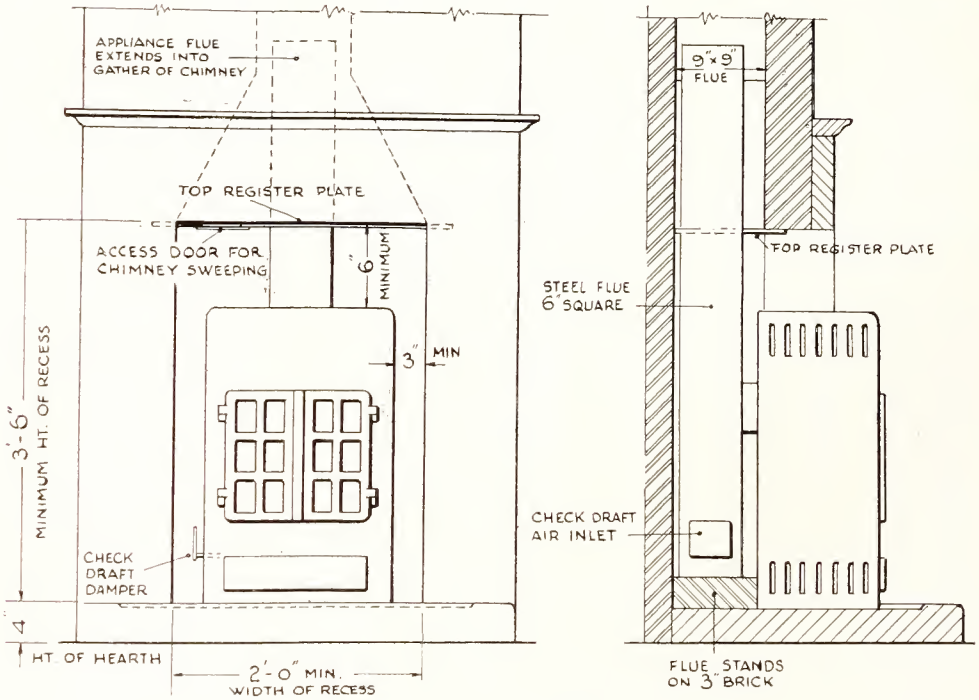


Fig. I

ii. **Connecting Flue.** The diameter and position of the outlet on heating stoves have not, so far, been standardised and it will generally be necessary to obtain the connecting flue from the makers of the heating stove. With some stoves the connecting flues for convector open fires may be suitable.

iii. **Flue Connection Block.** The position and diameter of the entrance to the chimney have to be selected according to the dimensions of the connecting flue.

iv. **Inset Stoves.** The installation of inset heating stoves should follow the same general principles already described for convector open fires in Section A.

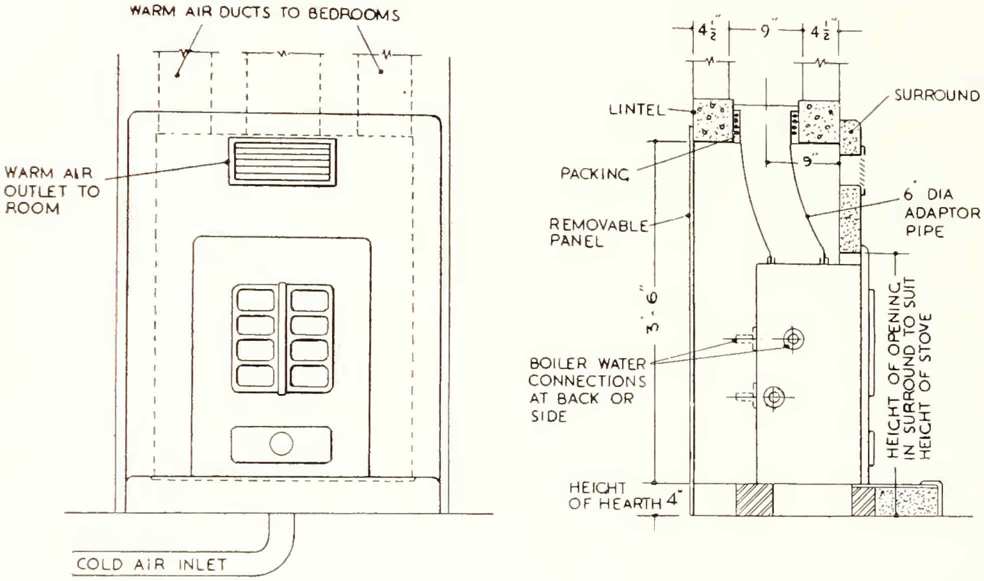


Fig. 2 (*a*) (Accessible from rear).

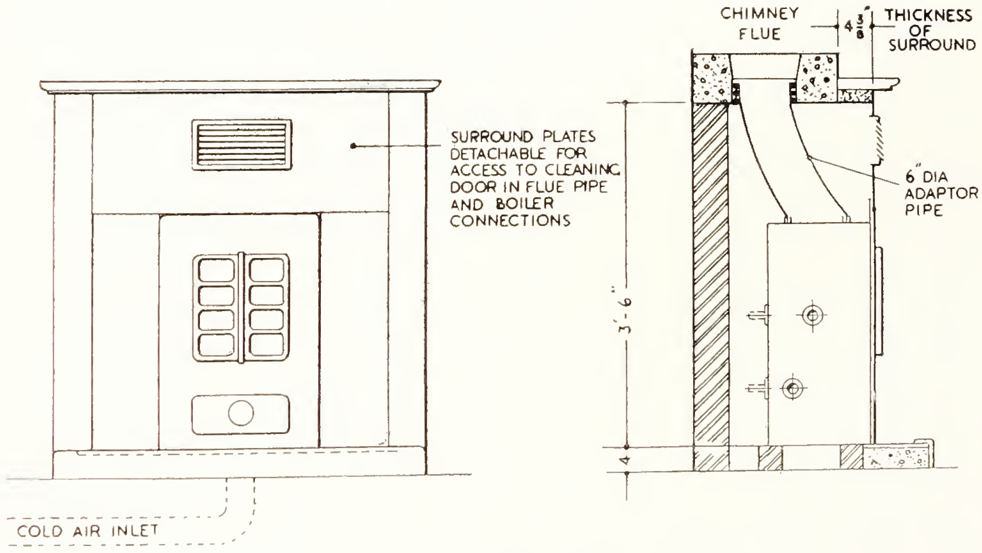


Fig. 2 (*b*) (Accessible from front).

v. **Freestanding and Independent Heating Stoves.** These appliances may be placed in a recess provided by the builders' opening. Where the appliance is placed in front of the surround care has to be taken to ensure the free passage of the combustion gases to the chimney, see Fig. 3.

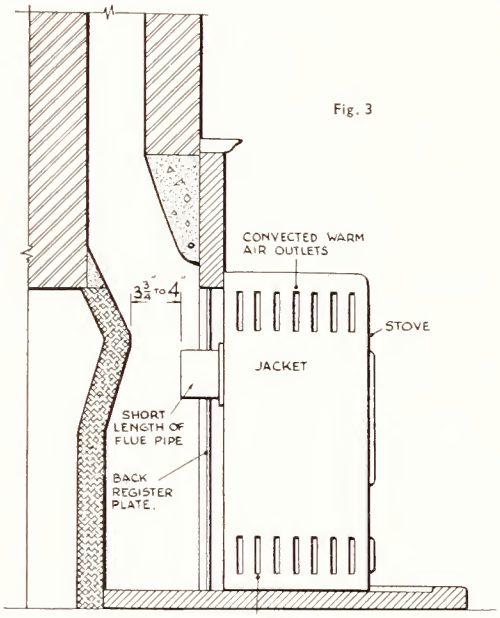


Fig. 3

V. WORKING INSTRUCTIONS

i. **Ignition.** A gas poker of the type which is placed in the ashpit is the most convenient method of lighting coke or any other solid fuel in a heating stove. The ashpan is removed, the gas poker placed in position and after fully charging with fuel the gas is lighted. With openable stoves the doors are kept closed during lighting. Using an approved gas poker, the gas is turned off after about twenty minutes, the ashpan is replaced but the ashpit cover is left off until the fuel is well alight. The ashpit cover is then placed in position and the heat output adjusted by means of the air control damper.

A blade type gas poker may be used for igniting fuel in a heating stove. The blade is inserted at grate level and the doors are closed as completely as possible. After 20 to 30 minutes, coke will be alight and the gas can be turned off. The speed of lighting will generally be less with the blade type poker, since the chimney draught is broken by the necessity for keeping the heating stove doors open.

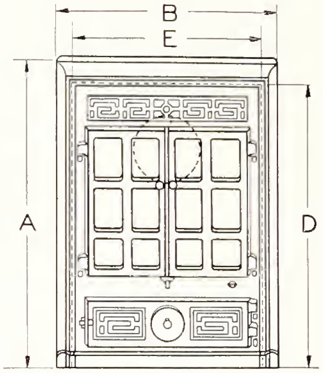
ii. **Control of Heat Output.** With closed heating stoves and stoves of the openable type used with the doors closed, only a small air opening is required even for high heat outputs. Care should therefore be taken to make sure that the ashpit cover plate is in its correct position. The exact position for a given heat output has to be found by trial and error for each installation since the air opening required depends on the chimney draught. Generally, however, half a turn of the spin damper makes an appreciable difference in heat output.

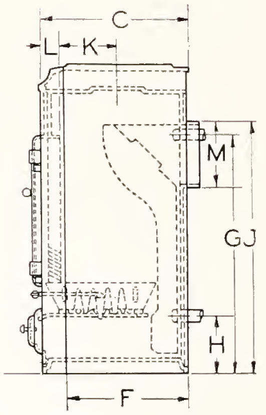
When the heating stove is operated as an open fire, *i.e.*, with the doors open, a larger air opening is required due to the break draught effect of the open doors. Care should be taken to reset the air control when the doors are closed.

iii. **Removal of Ash.** The ashpan should be emptied regularly and at such intervals that ash never builds up to within 1½ in. of the fire-bars. It will generally be convenient to empty the ashpan night and morning. Shaking grates should be operated slowly. Vigorous shaking increases the loss of fuel to the ashpit and may damage the shaking mechanism.

NEO-COKE STOVE

The London Warming Co. Ltd., 2 Percy Street, London, W.1.





RATINGS, CAPACITIES AND DIMENSIONS

Size Number	*Size of Room* *cu. ft.*	*Average Output B.Th.U. per hour*	*Fuel Capacity* *cu. ft.*	*Size of Fire* *in.*	*A* *in.*	*B* *in.*	*C* *in.*	*D* *in.*	*E* *in.*	*F* *in.*	*G* *in.*	*H* *in.*	*J* *in.*	*K* *in.*	*L* *in.*	*M* *in.*
1	2,000/2,500	6,000	0·40	12	24½	18½	12	22½	15	10½	18¾	4⅜	19½	4¼	1¾	5
2	3,000/4,000	9,000	0·55	13	27	20	12	23½	16½	10½	21⅜	4⅜	21½	4¼	1¾	5
3	4,500/5,500	13,000	0·65	14½	30	24	12	27¾	20	10½	22⅝	4⅜	22½	4¼	1¾	5

SPECIAL FEATURES.—Shaking grate fitted as standard. Can be fitted with back boiler for providing hot water for hot water supply, or for limited central heating.

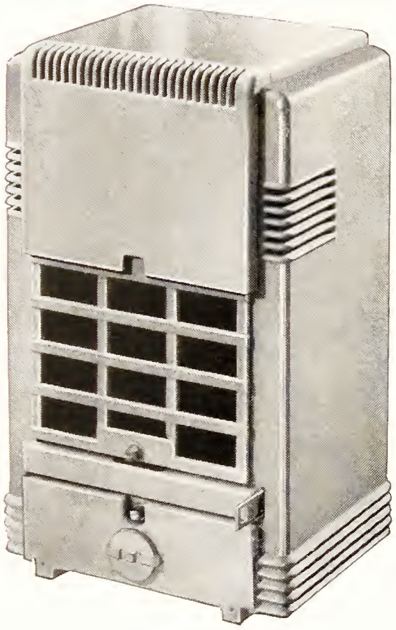
IGNITION.—Ignition is by luminous gas poker.

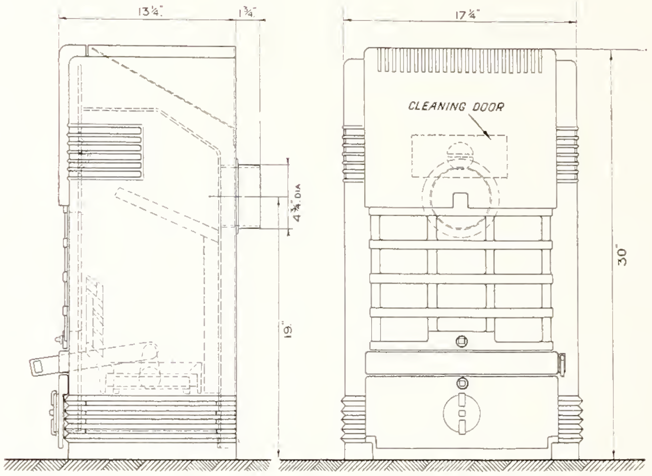
FINISHES.—Plain Black finish with nickel-plated doors ; Armour Bright ; Black enamel; Majolica enamelled, or Blue, Brown, Green, Grey or Mottled vitreous enamel

COKE SIZE RECOMMENDED : Number 3.

NUMBER 2 OTTO HEATING STOVE

Allied Ironfounders Ltd., Mortimer House, Mortimer Street, W.1.





DIMENSIONS AND RATINGS

Heating Capacity (Maker's Rating) cu. ft.	B.Th.U. per Hour		Height in.	Width in.	Depth in.	Flue Diameter in.	Height to Top of Flue Outlet in.	Fuel Capacity cu. ft.	Grate Area sq. ft.
	Maximum. Dampers Open	Minimum. Dampers Closed							
3,600	10,000	6,000	30	17¼	13¼	4½	21¾	0·43	0·51

SPECIAL FEATURES.—Shaking grate ; front door, with mica windows, opens vertically ; screw type air inlet damper ; cast iron cheek pieces are fitted in place of the more usual firebrick lining.

The fire under banked conditions will remain alight for nine hours before cleaning of the fire and re-charging is necessary.

When the stove is connected to a chimney higher than 20 feet, it may be necessary to fit a check draught damper in the chimney.

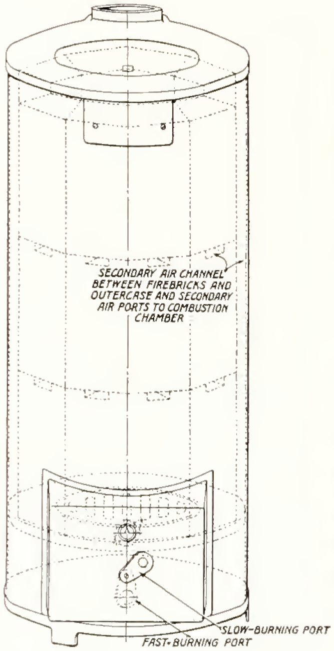
Finished in Black or Beige vitreous enamel.

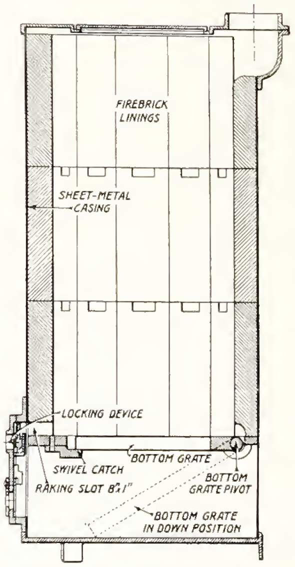
COKE SIZE RECOMMENDED : Number 3.

THE EAGLE COKE HEATER

FOR SPACE HEATING OF WORKSHOPS, STORE-ROOMS, PUBLIC HALLS, ETC.

The Eagle Range & Grate Co. Ltd., Aston, Birmingham, 6.
London Office : 58, St. Paul's Churchyard, London, E.C.4.





DIMENSIONS AND RATINGS

Size Number	Dimensions		Grate Area	Fuel Capacity	Approx. Heating Capacity (Maker's Rating)	B.Th.U. Output per Hour		Combustion Rate per Hour	
	Diameter in.	Height in.	sq. ft.	cu. ft.	cu. ft.*	Maximum	Minimum	Maximum lb.	Minimum lb.
S.1	13¼	22½	0·55	0·73	7,500	16,830	5,600	1·5	0·5
S.2	16	27	0·67	1·04	10,000	22,400	6,500	2·0	0·5
S.3	16	36	0·67	1·57	15,000	33,660	8,400	3·0	0·5

* *Based on normal conditions.*

Flue outlet is suitable for 4″ diameter cast iron pipe.

The Ashpit door is locked in position, and can only be removed by a key. Two primary airports are provided on the ashdoor—for maximum and minimum combustion rates—a shutter being raised for maximum combustion and lowered for the minimum rate.

The bottom grate is hinged at the back, and the front can be dropped by releasing a catch so that ash and clinker can be removed.

Flue outlet : At back on S.1 ; on top for S.2 and S.3. If specially ordered, flue outlet can be at back.

Firebox is lined with 2″ firebricks, the stove casing being of sheet metal.

Key for ashdoor, fire door lifter, ash tray and loose base are provided.

A card of Working Instructions is supplied.

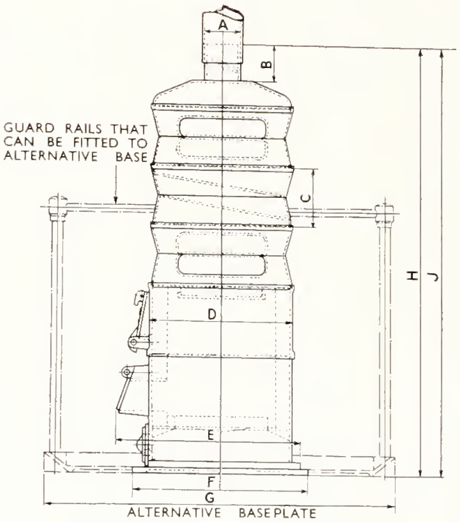
FINISH : Aluminium painted.

COKE SIZE RECOMMENDED : Number 2 for each Heater.

TANGYE HEATING STOVE

FOR AIR HEATING FACTORIES, WORKSHOPS, GARAGES, ETC.

Tangyes Ltd., Cornwall Works, Birmingham.
London Office : 81, Cannon Street, E.C.4.



No. 1 SIZE	
A	5″ DIA.
B	5″
C	8″
D	$19\frac{5}{8}$″ SQ.
E	26″ (EXTREME DEPTH)
F	24″ SQ.
G	48″ SQ.
H	4′ $10\frac{1}{2}$″ (OVERALL FOR 3 CHAMBER STOVE)
J	5′ $6\frac{1}{2}$″ (OVERALL FOR 4 CHAMBER STOVE)

No. 2 SIZE	
A	4″ DIA.
B	4″
C	$5\frac{5}{8}$″
D	$14\frac{13}{16}$″ SQ.
E	20″ (EXTREME DEPTH)
F	16″ SQ.
G	36″ SQ.
H	4′ $1\frac{1}{2}$″ (OVERALL FOR 3 CHAMBER STOVE)
J	4′ 7″ (OVERALL FOR 4 CHAMBER STOVE)

The stove consists of a square cast iron firebox, lined with firebrick, above which is fitted a number of cast iron radiator sections, each having air ports through them. If desired, some of the radiator sections may be removed. Sections are designed to interlock with each other, are interchangeable, and may be erected or dismantled without the use of bolts or screws.
A renewable firebrick baffle plate is fitted above the brick-lined furnace to prevent overheating of the radiator sections.
Control of combustion is obtained by means of ashpit and chimney dampers.

DIMENSIONS AND RATINGS

Size Number	*Heating Capacity (Maker's Rating)*	*Heating Capacity B.Th.U. per Hour **		*Overall Height including Flue Outlet Socket*	*Overall Width*	*Overall Depth*	*Height of One Pair Radiator Sections*	*Effective Fuel Capacity*	*Grate Area*	*Coke Consumption per Hour*		*Flue Outlet Diameter*
	cu. ft.	*Dampers Open*	*Dampers Closed*	*ft. in.*	*in.*	*in.*	*in.*	*cu. ft.*	*sq. ft.*	*Max. lb.*	*Min. lb.*	*in.*
1	60,000	200,000	50,000	5 6	24	27	8	1·5	1·5	24	4·55	5
2	30,000	100,000	25,000	4 7	16	20	$5\frac{5}{8}$	0·81	0·7	11	2·1	4

* *Stove comprising 3 radiator sections fitted with 25 ft. of vertical metal flue of diameter to suit flue outlet.*

Weights :	Number 1	Number 2
Stove with 3 Chambers (excluding firebricks)	$5\frac{3}{4}$ cwt.	$3\frac{3}{4}$ cwt.
Extra hot-air Chamber	3 qr. 17 lb.	1 qr. 14 lb.
Complete set of Firebricks	2 cwt. 1 qr.	1 cwt. 14 lb.
Circular cast iron base (supplied to order)	1 cwt. 2 qr.	1 cwt.
Square base, 4 pillars and handrail (supplied to order)	4 cwt.	3 cwt.

Flue Pipe to suit stove can be supplied in lengths as required.
Supplied : Black finish.

COKE SIZE RECOMMENDED : Number 2.

SECTION K

MISCELLANEOUS APPLIANCES

AND

ACCESSORIES

MISCELLANEOUS

PUBLICATIONS

SECTION K

MISCELLANEOUS APPLIANCES AND ACCESSORIES

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The Ivo Engineering & Construction Company Ltd.
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GAS FIRELIGHTERS, PLUGS AND SOCKETS

Wm. Edgar & Son Ltd.
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Wm. Sugg & Co. Ltd.
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FLUES AND LINTELS

True Flue Ltd.
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AUTOMATIC DAMPER CONTROL

Furnace Controls Ltd.
Auto-Check Fuel and Heat Regulator Kg.1

PUBLICATIONS

THE IVO DRAUGHT STABILIZER

The Ivo Engineering & Construction Co. Ltd.
Wood Lane, London, W.12

(1)

(2)

The Ivo Draught Stabilizer briefly is a cast-iron frame with a scientifically balanced aluminium air valve (easily removable), fitted to the outside of the chimney to eliminate draught variations, thus making efficient combustion possible. The pressure of the gases inside the chimney being lower than atmospheric pressure causes the air valve to open. A counterweight attached to a lever of variable length on the valve closes the valve. Thus any predetermined draught can be maintained constantly.

(3)

The appliance also takes the place of a soot door for flue access, thus eliminating the necessity for cutting another opening in the chimney. The illustrations show the fitting in

(1) a brick chimney
(2) a metal chimney.

When fitted in the open, the draught stabilizer should be protected by a hood as shown in illustration (3), to prevent the wind from upsetting the balance.

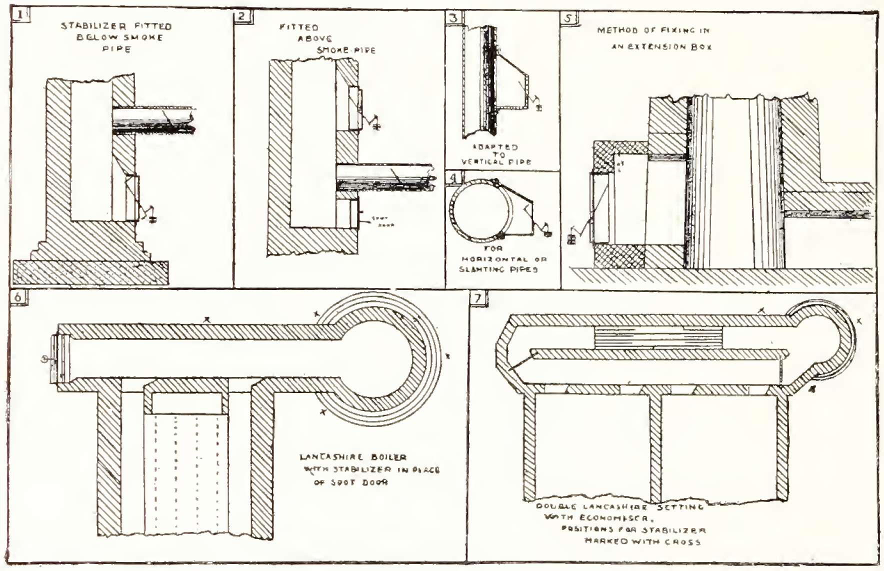
For dimensions and diagrams see following page.

THE IVO DRAUGHT STABILIZER

The Ivo Engineering & Construction Co. Ltd.
Wood Lane, London, W.12

For illustrations and notes, see previous page.

DIAGRAMS SHOWING METHODS OF FITTING



DIMENSIONS

Size Number	Suitable for Chimneys having Cross-section sq. in.	Opening required in Brickwork to take Frame	
		Width in.	Height in.
0	up to 70	5½	7½
I	70– 200	9½	15
II	200– 300	14	18½
III	300– 600	18	27
IV	550–1,500	26	35

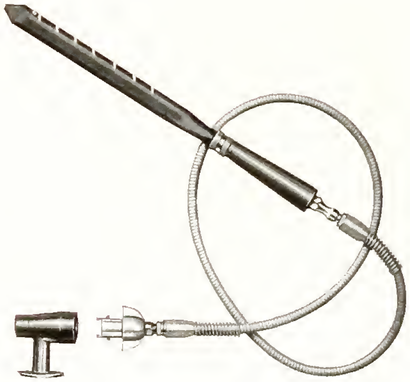
When the draught stabilizer is fitted to a metal chimney an adapter box is provided to suit the flue, the size and shape of which should be stated when ordering. Outside dimensions of the flue, and whether vertical, horizontal, or at an angle, should also be stated accurately.

PUBLICATIONS

EDGAR GAS FIRELIGHTER

For lighting the Independent Coke Fired Boiler, or Open Fire not fitted with a gas lighting-up burner.

Wm. Edgar & Son Ltd., 136 King Street, Hammersmith, W.6.



DIRECTIONS FOR USE

The Lighter is attached to a suitable gas point by means of a length of flexible metallic tubing. After raking out the previous day's ashes insert the Lighter amongst the cinders. Add a small amount of fresh fuel, and, after turning on gas, light with match or taper. The fuel will ignite quickly, when gas should be turned off and the Lighter withdrawn.

DESCRIPTION

NUMBER 1 FIRELIGHTER.—Blade is made from stout seamless drawn steel tube. The cap end, handle and mixing chamber are of die-cast aluminium.

Aluminium parts are supplied, either highly polished, or finished in artistic colours.

NUMBER 38 FIRELIGHTER.—Blade is made from seamless drawn steel tube. The end and centre portion are turned from rod brass and finished nickel-plate. The handle is of coloured Bakelite.

Flexible metallic tubing can be supplied in 3 ft. lengths, or longer if required, with all lighters.

Replace blades* can be supplied for all lighters. When ordering, the number of lighter should be stated.

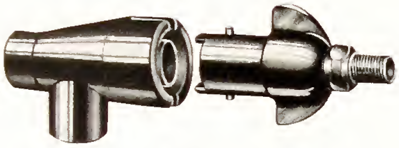
---

* *Blades only require renewal over long periods.*

EDGAR FLEXIBLE PLUGS AND SOCKETS

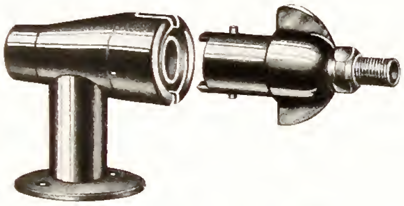
FOR USE WITH THE EDGAR GAS FIRELIGHTER AND OTHER PORTABLE APPLIANCES

Wm. Edgar & Son Ltd., 136 King Street, Hammersmith, W.6.



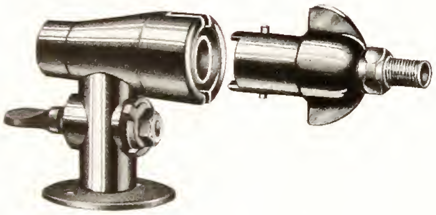
"ORDINARY" TYPE. No. 1. Mk. II.

Socket screwed ¼″ B.S.P. Nose-piece of plug screwed ⅛″ B.S.P.



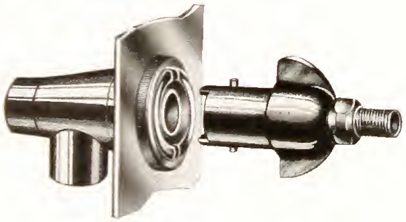
"PEDESTAL" TYPE. No. 2. Mk. II.

With flange for floor fixing. Socket screwed ¼″ B.S.P. Nose-piece of plug screwed ⅛″ B.S.P.



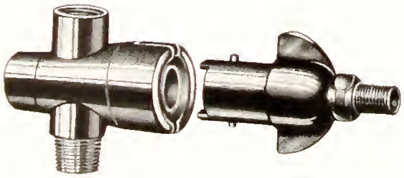
"PEDESTAL" TYPE with Stem Cock. No. 3. Mk. II.

This only differs from No. 2 in that the stem cock is added.



"FLUSH FITTING" or "SKIRTING BOARD" TYPE. No. 4. Mk. II.

This type has heavy brass plate 4″ long and 3″ wide, with holes in corners for fixing screws. Socket screwed ¼″ B.S.P. Nose-piece of plug screwed ⅛″ B.S.P.



"THROUGH" TYPE. No. 5. Mk. II.

Socket screwed ¼″ B.S.P. M. & F. Threads. Nose-piece of plug screwed ⅛″ B.S.P.

Spare plugs can be supplied for any type.

DIRECTIONS FOR USE

The Plug, to which the flexible tubing is attached, is inserted into the socket and given a quarter turn to the RIGHT to a definite stop. This action turns the gas ON. When the plug is given a quarter turn LEFT and fully withdrawn, the gas is automatically turned OFF. The gas may be turned OFF, **with the plug still in the socket,** by giving the plug a slightly further turn than a quarter left, until it is felt to reach a definite stop.

The Plugs are interchangeable with ALL types of sockets, so that with sockets fixed in various rooms, ANY portable appliance may be readily transferred and connected.

STANDARD FINISH.—Steel bronze. Other finishes can be supplied if required.

NEW WORLD GAS POKER

For lighting the Independent Coke Fired Boiler or Open Fire not fitted with a gas lighting-up burner.

Radiation Ltd., Radiation House, Aston, Birmingham, 6.

London Office : 7 Stratford Place, W.1.

DIRECTIONS FOR USE

The gas poker is attached to a convenient gas point by means of a suitable length of armoured flexible tubing. The use of British Standard Plug and Socket connector (B.S. 570) is recommended.

After raking out the previous day's ashes, add fresh coke to the grate or firebox. Then with gas supply tap fully open, light the poker and insert the blade into the fuel bed near the bottom, so that the flames penetrate horizontally. Care should be taken not to insert the blade further than the shoulder part. The flame holes should not be unduly obstructed by the fuel, as this may shorten the life of the blade. Remove the poker when the fire is alight.

The gas inlet is screwed ⅛″ B.S.P. taper thread (female). Alternatively a ⅛″ gas flexible push-on rubber connector of approved form may be used. Replacement blades can be supplied.

DESCRIPTION

The overall length of the Poker is 15¼″, the blade being 6½″ long. Two flame holes are positioned in the recessed part of the Poker blade, one on either side, just below the shoulders.

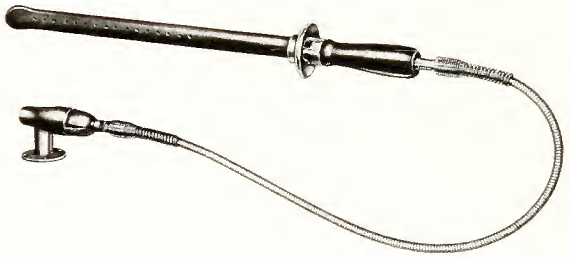
The two flames (non-aerated) spread at an angle of 20 degrees. When in use, the Poker makes a slight roaring noise.

A specially designed hollow, ventilated metal handle is fitted which is non-combustible and cool in use.

SUGG METRO GAS POKER

For Lighting Independent Coke Fired Boilers.

Wm. Sugg & Co. Ltd., Chapter Street, London, S.W.1.



DIRECTIONS FOR USE

The lighter is attached to an adjacent gas point by means of a suitable length of flexible metallic tubing. After clearing the ashes from the unburnt fuel on the grate, insert the lighted poker through the opening provided at the front of the boiler and add a little fresh coke ; the depth of fuel should be approximately six inches The chimney and ashpit dampers should be wide open while the fire is being ignited. Remove the poker as soon as the coke is alight.

DESCRIPTION

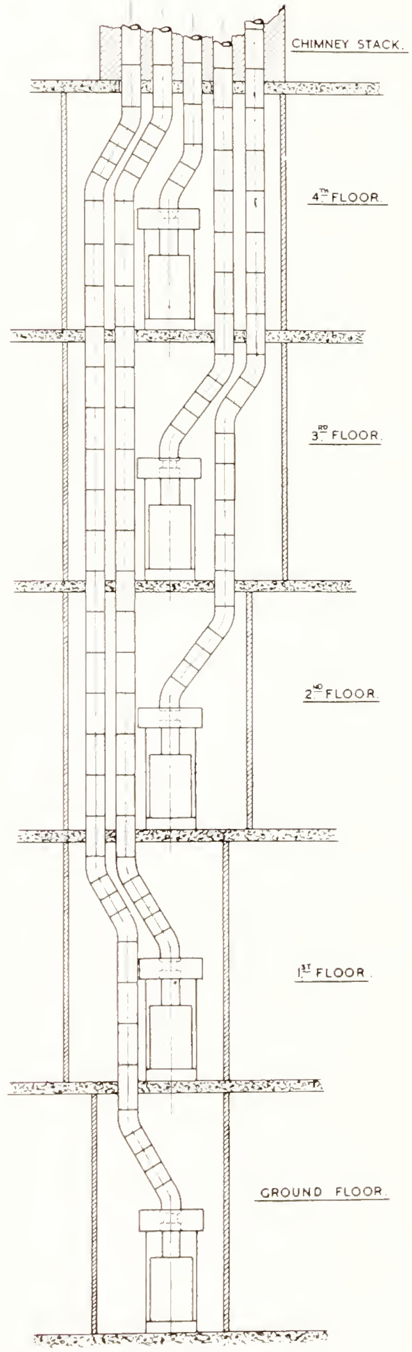
The poker consists of ½″ wrought iron barrel ⅞″ outside diameter and 12¼″ long, drilled over 7½″ of its length with two rows each of 17 holes, Number 37 Morse drill, and closed at one end ; at the other end is a gas injector and air port with shield. A suitable length of flexible metallic tubing is provided for connection to standard ⅜″ gas plug points. A wooden handle is fitted.

Replacement blades can be supplied.

FINISH.—Wrought iron burner painted black, polished wood handle, with brass fittings in bronze colour.

FLUES AND FIREPLACE CONSTRUCTION

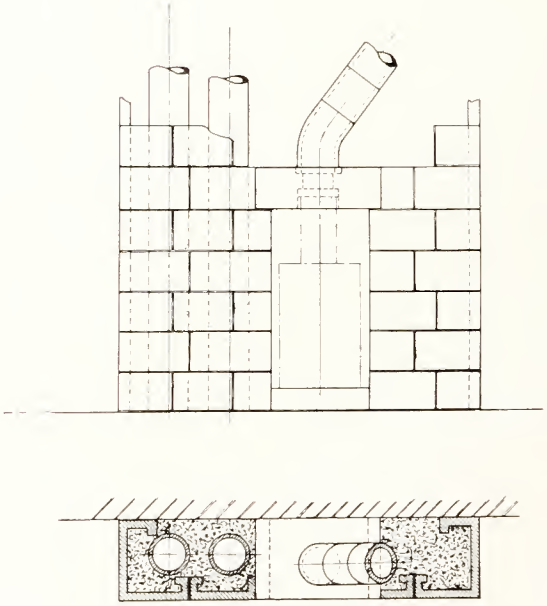
True Flue Ltd., Domestic Flue Specialists,
Convector House, Acacia Road, London, N.W.8.



ARRGT. OF PIPES. (TRUEFLUE)
FRONT BLOCKS OF BREAST REMOVED.

A quick and simple method of fireplace construction is provided by the use of keyed stack blocks, concentric circular flue liners and lintels. The illustration shows the application to a five storey block of flats. Other arrangements to suit individual requirements can be supplied on application.

The flue liners are $7\frac{1}{2}''$ internal diameter and are jointed to ensure accurate alignment.



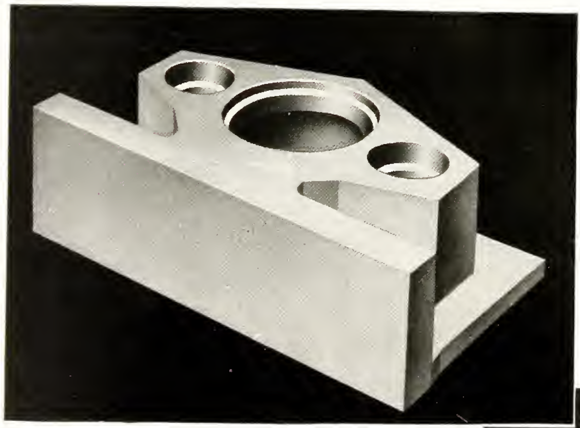
ARRGT. OF FLUES ON 2ND FLOOR.

TRUE FLUE LINTELS

True Flue Ltd., Domestic Flue Specialists,
Convector House, Acacia Road, London, N.W.8.

In the installation of open fires, convector open fires and heating stoves (see Introductory Notes, Sections A and F), it is convenient to use a lintel, which provides a simple method of connection to the main flue ; for open fires it also provides the throat.

Two of the range of lintel blocks are illustrated and plans showing their use can be obtained on application. The lintels are covered by Brit. Pat. Numbers 600,518, 600,069, 567,066 and Reg. Design Number 843,342.



This Lintel is for use with Convector or Non-Convector stoves. The necessary Convector and smoke connecting sleeves can be supplied.

The type of Lintel and Gather-Over block shown here is for use with the standard type of fireback. It can also be supplied with a back extension to accommodate a back-boiler flue. Note keyed stack blocks easy bends and commencement of flue linings.

AUTO-CHECK FUEL AND HEAT REGULATOR

FOR HOT WATER SUPPLY AND CENTRAL HEATING BOILERS

Furnace Controls Ltd., 35, Milk Street, London, E.C.2.

This regulator controls the chimney draught for varying combustion and load. It is a variable control unit, automatically regulating the draught through the fire according to the temperature in the flue. It is fitted as a part of the flue, and consists of a thermostat operating both a damper and an air-check. In a single operation the aperture of the flue can be decreased, whilst the aperture of the air-check will be increased, and *vice versâ*. The thermostat is placed above the flue damper and the air-check, and is operated by a balanced combination of temperatures, namely, the hot gases from the fire and the outside atmosphere. Should this balance be upset by a rise or fall in temperature, the thermostat will operate the damper and air-check to restore it.

The Auto-check is fitted into the flue, preferably in a vertical position above the boiler, replacing a short length of the flue pipe, ranging from approximately 12″ for the smallest size to about 2′ 6″ for the largest size. The diameter of the existing flue pipe decides the size of the Auto-check. Adapters are supplied, interchangeable for either top or bottom of the Auto-check, to suit existing flue pipe sizes and connections.

It is necessary when ordering to state the model number of the Auto-check and adapter required. Two adapters are supplied whether required or not.

The body is of fine cast iron, other parts being made of Firth " Staybrite " stainless steel. It may be easily removed for cleaning purposes and flue inspection.

STANDARD SIZES

Model Number	*Overall Length in.*	*Flue Pipe Diameter in.*	*Adapter required for Flue Pipe having*	
			Plain End Number	*Socket End Number*
50	12	4½ 5	none 504	501 503
67	15	6 7	none 674	671 673
89	19	8 9	892 894	none 893
100	24½	10	102	none
120	26	12	122	none
140	29¼	14	142	none

SECTION L

PUBLICATIONS

ISSUED BY

NATIONAL FEDERATION OF GAS COKE ASSOCIATIONS

AND

SOLID SMOKELESS FUELS FEDERATION

PUBLICATIONS

SECTION L

PUBLICATIONS ISSUED BY

THE NATIONAL FEDERATION OF GAS COKE ASSOCIATIONS AND THE SOLID SMOKELESS FUELS FEDERATION

THERMOSTATIC CONTROL OF COKE-FIRED BOILER PLANT FOR CENTRAL HEATING AND DOMESTIC HOT WATER SUPPLY.	
THE SEMI-PRODUCER FURNACE—PATENT No. 494086—DESCRIPTIVE LEAFLET. —INSTRUCTION BOOKLET.	
GRASS DRYING.	
GLASSHOUSE HEATING AND SOIL WARMING.	
COMBINE HARVESTING AND GRAIN DRYING.	
COKE FOR ORCHARD HEATING.	
DEGREE DAYS.	
PRODUCER GAS PLANT FOR INDUSTRIAL PURPOSES . .	Solid Smokeless Fuels Federation.
STRUCTURAL INSULATION FOR DWELLINGS	,, ,,
HOW TO "STOP FUEL WASTE" IN— SMALL STEAM RAISING PLANT . . . CENTRAL HEATING BOILERS . . . DOMESTIC HOT WATER SUPPLY BOILERS . .	,, ,,
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DOMESTIC APPLIANCES BOOKLET	,, ,,
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STEAM DRIVEN TRANSPORT VEHICLES	Published by the Joint Investigations Committee of the Coal Utilization Joint Council and the Solid Smokeless Fuels Federation, 1945.

Some of the above pamphlets are available without charge from the National Federation of Gas Coke Associations to whom application should be made.